

AN EXPLORATION OF FACTORS AFFECTING ABSORPTIVE CAPACITY OF KNOWLEDGE IN AN ORGANISATION IN THE CARIBBEAN

By

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Declaration of Authorship

I Merle St. Clair Auguste hereby declare that this thesis and the work presented in it is entirely my own. Where I have consulted the work of others, this is always clearly stated.

A handwritten signature in black ink, appearing to be 'Merle St. Clair Auguste', written in a cursive style.

November 21 2011

ABSTRACT

Learning in organisations was examined using the concept of Absorptive capacity (AC) in circumstances where new knowledge enters a public organisation. AC is investigated using notions of exploratory, transformative and exploitative learning to study how new knowledge is mobilised. This builds on existing literature of AC which explores the same phenomena in private sector organisations. This investigation provides a deeper understanding of how scarce organisational resources can be effectively deployed, in a Caribbean setting. This is pursued through exploring the behaviors, processes and structures that influence the implementation of new knowledge in an educational institution, named Aquacon, based at two sites in the Caribbean.

Using a Critical Realist perspective, this study has adopted a structured sampling approach, where evidence was gathered using semi-structured interviews, observation and documents. The data analysis has included both within and cross case analyses.

The findings show that AC processes do not always follow a sequential path. Prescriptive and emergent forms of learning were used to provide a novel perspective of organisational learning. The propensity for innovation to occur was found more likely when the distinctions between the dimensions of AC were blurred, and critical reflection extended throughout the entire process. The results suggest that power and politics can be a negative influence on the extent of knowledge absorption.

This investigation contributes to theoretical and practical understanding of organisational learning processes associated with new knowledge and change or innovation. This has implications for managers and the ways in which power and politics can be perceived to encourage a richer technological learning experience for employees in a Caribbean context.

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ACRONYM/GLOSSARY

AC	Absorptive Capacity
ACS	Association of Caribbean States
CDB	Caribbean Development Bank
CARICOM	Caribbean Community
CCCM	Caribbean Community and Common Market
CSME	Caribbean Single Market and Economy
CARICAD	Caribbean Centre for Development Administration
CARIFORUM	Caribbean Forum
CIDA	Canadian International Development Agency
CNRM	Caribbean Regional and Negotiating Machinery
CR	Critical Realism
CSME	Caribbean Single Market and Economy
ECCB	Eastern Caribbean Central Bank
ECLAC	Economic Commission for Latin America and the Caribbean
EDPM	Electronic Document Preparation and Management
ETE	Exploratory, Transformative and Exploitative Learning
EU	European Union
GSPS	Growth and Social Protection Strategy
ICT	Information and Communication Technology
IT	Information Technology
IDB	Inter-American Development Bank
IMF	International Monetary Fund
KM	Knowledge Management
NK	New knowledge
OAS	Organisation of American States
OC	Office Communicator
OECS	Organisation of Eastern Caribbean States
PRK	Prior related knowledge
R&D	Research and Development
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UWI	University of the West Indies
WB	World Bank

CHAPTER 1: INTRODUCTION

1.1 BACKGROUND TO STUDY

This case study occurred within Aquacon, an organisation in the Caribbean that serves education needs of a number of countries. To provide a context for this investigation a foundation must be set in terms of the regional political, social and economic tendencies in which Aquacon operates. This is followed by a brief view of information and knowledge in the Caribbean. The rationale and stated problem for this investigation is discussed and key questions posed. The motivation for and significance of the study is outlined and the description of research tasks carried out are delineated. The Chapter concludes with a brief outline of the structure of the thesis which provides an overview of this investigation.

1.1.1 THE CARIBBEAN

The Caribbean is a developing environment with a combined population of approximately 41,427,004¹. It is an archipelago in the Americas lying between North and South America, enclosing the Caribbean Sea. In this study there is emphasis on countries that form part of the Caribbean Community (CARICOM) and are stakeholders and clients of Aquacon. Included in this grouping are the islands of Antigua and Barbuda, Bahamas, Barbados, Belize, British Virgin Islands, Cayman Islands, Dominica, Grenada, Guyana, Jamaica, Montserrat, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Trinidad and Tobago, and Turks and Caicos. Generally, these countries share similar histories, economies, politics, social and environmental issues (Thakur, 2012).

The islands of the Caribbean are considered small states (Girvan, 2006; Venner, 2010). Small states have economic challenges so that the ability to exercise economies of scale is limited (Briguglio, 1995). Bishop and Payne (2010) explain, “*Some of the explanations are, of course, self-evident. A lack of capital, whether natural, human, political, technical or financial, has represented an enduring barrier...*”(p.4). The legacy of the British colonial system is still apparent in social, political, legal and economic institutions (Thakur, 2012). The economies of these small islands were based mainly on agricultural exports, and currently, these economies are largely limited to tourism, bauxite, and bananas (Venner, 2010). The combination of the sizes of the islands, the complex history of colonialism with the amalgam of individual cultures and jurisdictions (Brewster,

¹ Figures as of June 2011 from Accessed Jan 22 2012 - <http://www.internetworldstats.com/stats11.htm>

2003); international trade, and modern economic and political influences have affected the development of the Caribbean region (Girvan, 2006). These factors have challenged the development of the region, along with complications of unemployment and government debt (Alexander and Butcher, 2011).

The “sea water dilemma” (Venner, 1997) is still a constant challenge despite modern technology and tends to promote a sense of insularity. These water boundaries have created insularities that have undermined efforts of collaboration between Caribbean sovereign island states (Bishop and Payne, 2010). The ability to compete and develop with a more unified approach requires a rethinking of the preservation of those boundaries (Venner, 1997). Within this environment Caribbean economies are acutely open and susceptible to external and unpredictable economic events and natural disasters (Girvan, 2006). This is again compounded by a limited natural resource base as well as human and financial resources (Venner, 2011). Venner (2010), advises,

... small countries, with economic structures that are externally oriented,... the effects of such a crisis presents us with major challenges to restructure and realign production and consumption patterns in order to be more resilient and internationally competitive. The slow pace of the recovery of the international economy makes these challenges even more daunting. (p.4)

Historically, similar financial and economic circumstances have required the advice and support from the World Bank and the International Monetary Fund (IMF). These relationships may have not necessarily been in the interest of Caribbean countries (Girvan, 2006). In the current global financial crisis, meetings with the IMF and the World Bank Group (WB) confirmed their commitment to continue working within the Caribbean to attend to those challenges (Venner, 2010). These relationships remain as United States of America policy has traditionally protected what they have considered to be integral to their own security and their quick and decisive response to the Grenadian Revolution demonstrated their interest in the region (Serbin, 1998). Furthermore, their policies included development assistance with intolerance to undemocratic political experiments (Bishop and Payne, 2010). Therefore, the Caribbean has enjoyed relatively undisturbed democratic political systems and is the envy of other developing nations (Venner, 1997). The vulnerability and dependence of the Caribbean countries have driven them to the IMF and the World Bank which applied structural adjustment solutions, and increased their vulnerabilities through liberalized markets (Girvan, 2006).

At the regional level, in 1947, the West Indies Federation was one of the first of attempts to develop a comprehensive regional agreement, and according to Alleyne (2007), its failure has left a lasting legacy on the political landscape of the Caribbean. In 1973 through another attempt at regional integration, the Caribbean Community and Common Market (CCCM) was established. Through CARICOM, a more effective and broader regional governmental network has been instrumental in the development of the Caribbean Single Market and Economy (CSME). The CSME is a regional body which creates one large market to attract investment and mechanisms for more and better opportunities to produce and sell regional goods and services among member countries. The Caribbean Regional and Negotiating Machinery (CRNM) which falls under the Caribbean Forum of African, Caribbean and Pacific States (CARIFORUM) has also played a critical role in managing the plethora of bilateral and multilateral negotiations that have been a fundamental part of international relations for the region (Bishop and Payne, 2010). In addition, the Association of Caribbean States (ACS) has contributed to the development of associations between Caribbean Islands and Central and South American neighbors that also create a border for the Caribbean Sea. Hence the inclusion of Belize and Guyana as mentioned previously under the purview of Aquacon. Furthermore, The Organisation of Eastern Caribbean States (OECS) and the Eastern Caribbean Bank (ECCB) have contributed to a stable economy of the Leeward² and Windward³ Islands during periods of instability (Venner, 2011).

Another major problem facing Caribbean economies is the lack of applied technology, in an increasingly competitive environment (Venner, 2006). IT capacity in terms of production of hardware and software is still not a prolific aspect of the IT landscape (Gaible, 2008). Furthermore, according to a 2011 study by the Inter-American Development Bank (IDB) Caribbean governments are advised to focus on effective use of technology as increased access to ICT's cannot improve development (Chong et al. 2010). An additional element that sheds light on information and knowledge in the Caribbean is through the status of higher education.

² The Leeward Islands include the islands of , St. Kitts and Nevis, Antigua and Barbuda, Anguilla, Monsterrat

³ The Windward Islands include the islands of St. Lucia, Commonwealth of Dominica, Grenada and St. Vincent and the Grenadines

Higher education is defined by UNESCO as “*all types of studies, training or training for research at the post-secondary level, provided by universities or other educational establishments that are approved as institutions of higher learning by competent State authorities.*”(World Conference Higher Education 1998). Training in higher education in the region continues to be a challenge for the majority of individual island populations, and tends to be rather idiosyncratic and inconsistent from island to island (Brock, 2008). Governments are expecting more from tertiary education in terms of equal access, and quality while at the same time reducing on budgets (Howe, 2005). This has repercussions for quality in higher education in the Caribbean particularly with the development of private universities and online programs. Traditionally, higher education has been addressed through the regional configuration of the University of the West Indies (UWI), and national community colleges. As with many other universities around the world, UWI is expected to contribute to economic development through research and development activities. Recently, the competition with private universities has seen UWI as the gold standard or benchmarking in the region (Miller, 2007). Tertiary education must contribute more to economic and social development through “massification” (Altbach and Peterson, 2007). Online programs may meet the need to enroll mature and young students at the first degree level and part time study (Brock, 2008).

It is difficult to find research that actually considers knowledge specifically as part of the knowledge economy of the Caribbean. The literature on knowledge use and application tends to be couched in ICT terms (ECLAC 2009). This undermines the attention required to address critical issues that affect the outputs of ICT. To delve into the system of innovation within the Caribbean requires discussion. Lewis (1955) stated, “... *one of the main deficiencies of under developed countries is their failure to spend adequately upon research, and upon the development of new processes and materials appropriate to their circumstances...*”(p.174). An effective innovation system is normally composed of companies, research centers, universities, consultants, and other organisations that keep up with new knowledge and technology (ECLAC 2009). Further this system maintains links with global knowledge as it develops and integrates and applies it as necessary to local requirements.

In this way the Caribbean can participate fully in the knowledge-based society- “... *an innovative and life-long learning society, which possesses a community of scholars, researchers, engineers, technicians, research networks, and firms engaged in research*

and in production of high-technology goods and service provision (The World Science Forum, 2003). In the Caribbean, the processes within the innovation systems are somewhat uncoordinated (Copeland et al. 2008). UWI for example is at one end of the innovation system with an emphasis on research. The private sector however, does not necessarily have the capacity to produce or create new inventions, rendering the innovation system incomplete. According to Copeland et al (2008), the situation is compounded as research is funded through the public purse (Venner, 2010) and copyright is also lost. A glaring observation by Copeland et al (2008) puts the state of innovation into perspective,

It must be noted that very little or none of the knowledge generated in CARICOM countries from the funding of research has been utilized in inventions, innovations, technology transfer to business and industry to drive economic growth and development, thereby allowing the region to be globally competitive as a result of these research activities. Regional innovation systems are clearly the missing mechanisms in Caribbean countries for wealth generation using knowledge as the input ingredient. (p.4).

Furthermore, Copeland et al (2008) also argue, “*The region needs discrete Innovation Systems as immediate precursors to the wider aim of creating a knowledge-based society via a knowledge base economy*” (p.7). As indicated above, the higher education ‘system’ consists of institutions with programs which are unequally distributed around the region. The majority of the institutions lean to teaching and professional training, where research and knowledge is mostly imported (Brock, 2008). Scientific and technological research is concentrated in a small number of countries, within consortiums from developed countries and development organisations such as the World Bank, UNESCO and the European Union (Ramos and Rivera, 2001). The Caribbean is in dire need of critical research capacity that transcends the norm of importation and adaptation. The indigenous element is fundamental to knowledge architecture within a regional Caribbean innovative system, to participate more meaningfully in the knowledge economy and as a means to combat underdevelopment. The path between research and use to innovation may require synergies to compensate for the differences in the structures of the developed innovation systems. This relates to the significant difference between the applications of research by the private sector.

Within social sector organisations, oral history appears to dominate the information and knowledge fabric of the Caribbean. The implementation of technological devices appears to be a substitute indicator that information and knowledge are being utilised effectively (Greenidge, 2011) and raises fundamental issues of sustainability. More developed countries have a history of mature information and knowledge bases and that deficiency is considered a major challenge for technology integration (CARICAD, 2009). Literature in information and knowledge for development address development issues on a broad and diverse scale (Salas et al. 2008). The focus on ICT as a mediator for information and knowledge management may mislead the acute challenges of technology integration. This maturity in information management (IM) and knowledge management (KM) are quite distinct, yet integral to the robust technological tools in which organisations must now operate.

According to the World Bank (2007), countries that are moving towards a knowledge economy, need a stable education policy, a dynamic information structure and an effective innovation system. The present study is concerned with two of the four pillars proposed by the World Bank and supported by ECLAC (2009), on which innovation related policies should be developed. The two pillars include a modern and adequate information structure to facilitate effective communication, and appropriate mechanisms for the dissemination and processing of information and knowledge. ICTs (including telephone, television, and radio networks) are seen by the World Bank as the essential infrastructure of the global, information-based economies. Second, an effective innovation system composed of firms, research centres, universities, consultants, and other organisations that are abreast of new knowledge and technology, that tap into the growing stock of global knowledge and assimilate and adapt it to local needs.

The World Bank (2007) proposed that countries competing to become successful knowledge economies,

“...have to rethink and act simultaneously on their education base, their innovation systems, and their ICT infrastructure, while also building a high quality economic and institutional regime...” (p.25).

Although, all the above mentioned factors are important, the ability to innovate has been a constant challenge. Technically the Caribbean has moved with technology, however, there is still a need to address the further integration of technology, processes and the people aspect of the information and knowledge economy (Miller et al. 2000). From

awareness of the conceptualization and implementation of various projects in the Caribbean the researcher has observed that information and knowledge management have been overlooked and token attention given within the confines of ICT projects (Charles and St Clair Auguste, 2005). De Guchteneire and Mlikota (2008) observe that e-governance initiatives for improvement of citizen participation and engagement have not fulfilled the potential offered by new technologies and has affected for example provision of information models for e-governance and ICT in education. Development agencies report that people in the developing context exhibit unawareness of the role ICTs play in encouraging good governance and local development.

To add to these challenges, CARICAD (2009), referred to one aspect of the ICT report on information management issues, citing limited participation in information sharing portals, documenting government information, looking outside of region for relevant information, and reinvention of the wheel which leads to misuse at the regional level, and compromises economies. Despite the efforts of regional collaborative organisations such as OECS, CARICOM, there is still limited collaboration and information sharing across the region. In addition, the information and knowledge management efforts to date appear to be content-related and focused within development organisations (Ramalingam, 2005). This is consistent with Snowden (2002) who views the wave of the third generation⁴ of managing knowledge which moves beyond managing knowledge as a *thing* to also managing it as a *flow*. This view proposes a focus more on context rather than on management of knowledge as content (Snowden, 2002). The study of information and knowledge within a defined context may provide an opportunity for a penetrating exercise to reveal challenges of information and knowledge sharing. Therefore, this investigation intends to delve into the issues related to the transfer of information and knowledge within an organisation to discover the actions and interactions of individuals in a developing environment.

A review of the knowledge transfer literature revealed a construct defined as absorptive capacity (AC), coined by Cohen and Levinthal (1990) as, “*the ability of a firm to recognise the value of new external information, assimilate it, and apply it to commercial ends...*” (p. 569). AC dimensions refer to the ability to recognise, assimilate and apply knowledge. These dimensions indicated a potential approach to understanding

⁴ First generation – technology, second – content, third – including previous generations with a focus on individuals in the process.

information sharing as well as challenges with the integration of technology in a developing context (Kedia and Bhagat, 1988). Further investigations led this study into learning processes that affect potential factors which may lead to change and innovation.

1.2 PROBLEM DEFINITION AND KEY QUESTIONS

Learning processes may lead to innovation when individuals share new information and knowledge as an integral characteristic of organisational processes (Cohen and Levinthal, 1990; Easterby-Smith et al. 2008a; Todorova and Durisin, 2007; Van den Bosch et al. 2003; Van Wijk et al. 2011; Zahra and George, 2002). Another dimension to the issues related to innovation is to understand the learning processes that may lead new technological knowledge into innovation in a Caribbean context. AC falls within the organisational learning (OL) field and is distinct as the form of learning that addresses learning with new knowledge (Crossan et al. 2011; Easterby-Smith et al. 2008a; Sun et al. 2010; Vera et al. 2011). Implementing new knowledge with a focus on technology may provide evidence of the knowledge processes and skills required for learning to achieve effective change and innovation. The developing context may also highlight other influences that affect the learning processes and the knowledge required for this to occur.

Gaps in the literature

Research to date has linked AC largely to inter-organisational processes; this has permeated the dimensions, antecedent and outcomes of AC. The majority of investigations have employed an organisational level approach which has in some respects, produced a surface level understanding of AC processes between organisations. The mainstream investigations have overlooked the detailed process of new knowledge as it moves within the organisation and influences the learning processes. Consequently, to fill this gap, an investigation into the influence of internal processes may increase our understanding of the AC construct (Easterby-Smith et al. 2008a; Lane et al. 2006; Todorova and Durisin, 2007; Van Den Bosch et al. 2003; Van Wijk et al. 2011; Zahra and George, 2002). This investigation is concerned with the understanding of learning processes involved in converting new knowledge into innovation through a case study in the Caribbean. A Caribbean context may shed some light on the assumptions of learning processes related to innovation. These assumptions highlight a number of gaps in the literature that provide the basis for an addition and alternative perspective of AC.

Given that most current studies focus on R&D, the emphasis has been on the OL processes associated with explicit rather than tacit knowledge. The lines of enquiry have

been linked with measurement of information related to learning processes and knowledge bases (Cohen and Levinthal, 1990; Lane et al. 2006; Lewin et al. 2011; Van den Bosch et al. 2003). In looking at different levels of the organisation the individual may have an important role in these learning processes (Cohen and Levinthal, 1990; Easterby-Smith et al. 2008a; Jones, 2006; Volberda et al. 2010). The focus on the organisational level distances the individual from the information and knowledge processes that may affect learning and innovative behaviours (Cohen and Levinthal, 1990; Jansen et al. 2005; Szulanski, 1996; Van Wijk et al. 2011). Although AC has developed in the private sector there has been attention on non-profit and public sector environments (Easterby-Smith et al. 2008a). A Caribbean context may provide an alternative understanding of learning as features of the absorption process of new knowledge in organisations may highlight other influences.

Key Questions

In view of the above assumptions and the gaps outlined, the research investigated the following key questions: How do individual actions and interactions affect the exploration, transformation and exploitation of new knowledge? What drives the search for new knowledge which influences learning and innovation?

1.3 RESEARCH AIMS AND OBJECTIVES

The aim of this investigation is to understand the learning processes associated with new technological knowledge that may lead to innovative practices in an educational institution in the Caribbean. The objectives are to understand the structures, processes and behaviors associated with the implementation of new technological knowledge. In particular, the objectives of the study included exploring individual perceptions of new knowledge in terms of their actions and interactions. Another objective is to understand how other factors such as power and politics and other forms of learning may influence the learning processes within an organisation.

1.4 MOTIVATION FOR STUDY

The primary motivation for this investigation stems from the researcher's interest in how information and knowledge in organisations can effect change. The experience with

regional governmental organisations in the Caribbean raised questions about the role of information and knowledge within organisations and in particular how they were associated with learning. Information and knowledge sharing practices are still a challenge (CARICAD 2009) and the ‘information is power’ concept appears to be prevalent in the Caribbean. The researcher managed a short study that explored how individuals in the administration of the Ministries of Education use information to make decisions. The study revealed information was stored in the offices of staff members and “re-inventing the wheel” appeared to be the norm (Charles and St. Clair Auguste, 2005).

The purpose of that study was to explore ways of reducing the incidence of repetition of mistakes throughout the OECS to effect economies of scale and to encourage the use of best practices. The study found that even though individuals were aware of the importance for improved information practices, the drive and priority for it was not coming from the upper echelons of the Ministry. Conversely, the administrators thought that individuals did not display the appropriate attitudes for handling information correctly. All agreed that there were benefits in improving, but did not indicate how a change could be encouraged. These observations have prompted questions such as: How well do organisations manage information? What are the elements within the environment that impede improvement in terms of the people, the processes and the technology? This apprenticeship in research provided a step to further research in information, knowledge and learning in the Caribbean.

1.5 IMPORTANCE OF STUDY

This study is significant theoretically as it relates to AC as a construct, in practice, and for the Caribbean. As a learning construct AC provides a theoretical opportunity to view the information and knowledge flows that occur between individuals within organisations. This in-depth investigation with rich descriptions also revealed the opportunities of power and politics, individual interactions and organisational structure, as well as various activities and forms of learning. The ability to learn through information and knowledge in the knowledge economy is an indicator of sustainability (World Bank, 2007; Pasteur et al. 2006). In the developing environment survival rather than competition is a continuous challenge that can be addressed with information and knowledge strategies in a wider context of learning (De Guchteneire and Mlikota, 2008). Within this framework, the

opportunities for innovation and development increase the sustainability and survival of economies and societies (World Bank, 2007; Salas et al. 2008).

The future of the Caribbean and sustainability of developmental initiatives are achieved through the application and integration of principles of information and knowledge transfer and management (Pasteur et al. 2006). In addition to providing a contribution to the support of an economy based on information and knowledge, this study will create awareness for knowledge creation and potential for learning and innovation. In practice, this study is important since the understanding of learning can be critical for managers in organisations to create and encourage friendly learning environments. In addition, this is a stepping stone to encourage change, innovation and the cultivation of new practices in public organisations.

1.6 DESCRIPTION OF RESEARCH TASKS

In addition to the interest in information and knowledge practices in organisations, the concept of absorptive capacity was selected for this investigation by conducting a broad review of literature in knowledge transfer. In addition to absorptive capacity, this initial review included readings in areas of trust and factors affecting knowledge transfer. The selection of absorptive capacity in an organisational context was based on the potential that the extant literature revealed of the interactions between new information, knowledge and learning. As an overview, a citation analysis showed a number of inconsistencies in the theoretical and empirical use of the construct. These inconsistencies provided initial arguments and a tentative approach to alternative methods of investigating and increasing the understanding of AC.

An in-depth review of the literature revealed theoretical gaps that seemed substantive enough to explore for the further development of the construct using the Caribbean as an alternative context. The researcher produced a paper explaining the gaps according to the literature which provided the arguments for a pilot study that considered an alternative way of viewing AC. In addition, the literature indicated a large quantitative approach to the research of AC, with two exceptions (Easterby-Smith et al. 2008a; Jones, 2006). This methodological gap influenced the decision to pursue a qualitative approach with a case study strategy.

The pilot study provided an additional step in the ground work for the main study. This invaluable exercise afforded a higher level of confidence in managing the rigors of preparing and anticipating challenges of main study processes. In particular, the pilot was instrumental in confirming the viability of the initial conceptual framework and the research design for the study. It also confirmed that the dimensions of AC do exist and can be measured reliably. Another critical step in this research process was an exploration into the ontological and epistemological basis of this investigation. This activity established a deeper awareness for the researcher which promoted further self-critical reflection.

Despite the experience of the pilot study, the main study process was another learning curve, where additional challenges during data collection and analysis increased an understanding of the complexity of research. Combining the tasks of transcription, data analysis, reading and writing draft chapters for the thesis has been a rich experience. The process has added flexibility and variety to the process as well as opportunities for evaluation across the different tasks.

1.7 STRUCTURE OF THESIS

Chapter 2 grounds the thesis in a philosophical framing from which the treatment of knowledge may be defined. The chapter also provides the basis for implicit decisions about the direction of the thesis in terms of ontological and epistemological underpinnings that also affect the approach to the methodology used for this study.

Chapter 3 reviews the debates in the AC literature within the main areas of focus for this investigation. The nature of AC is directly related to the way in which research has so far focused on the initial characteristics of the constructs. The literature review considers the relevant dimensions, antecedents and related concepts that define this investigation.

Chapter 4 outlines the qualitative methodology and case study strategy used for this investigation in collecting and analyzing empirical evidence. The connection between the epistemological approach, the gaps in the literature and the analysis are framed in a research exercise to produce a further understanding of absorptive capacity. The methods for data analysis are also outlined and supported by detailed examples.

Chapter 5, Case Study Analysis, analyses the cases which are instruments to a further understanding of absorptive capacity. This focuses on the interpretations and flows of new knowledge through the organisation as described by informants. This discussion provides the basis for a further understanding of absorptive capacity, emergent and prescriptive forms of learning operating in a particular environment. The related influences of power and politics were also addressed.

Chapter 6 discusses the major research findings and enfolds the current literature. The findings and questions are discussed and theoretical contributions to absorptive capacity are outlined. It will also detail the implications of this research to theory and practice for managers. The limitations of this research process are also addressed.

SUMMARY

This introductory chapter has provided the background to this study. The following chapter outlines the philosophical underpinnings that shape the approach, arguments and gaps in prior research undertaken. In addition, foundation on which to investigate the influences of AC in a social sector organisation is given attention.

CHAPTER 2: EPISTEMOLOGICAL PERSPECTIVE

2.1 INTRODUCTION

The purpose of this chapter is to discuss the researcher's approach to and perception of the nature of knowledge, and in the ways in which the concept of knowledge has been used in relation to organisational knowledge. An understanding of organisational knowledge needs to be founded on ontological and epistemological assumptions, so that theoretical frameworks are consistent and reinforced (Jashapara, 2007). This question of "what is knowledge" is an ongoing debate on many levels (Cardinal et al. 2004), however for this investigation the debate will be canvassed on the epistemological elements within the organisational knowledge and related literatures such as knowledge management (Easterby-Smith and Lyles, 2011). In addition, the researcher agrees with other writers (Easton, 2010; Reed, 2005; Wikgren, 2005) that elements of the critical realist (CR) approach offer a unique lens into case study research. It may also reveal in-depth processes of managing knowledge and learning within an organisation through the construct of AC. The investigator notes that CR has developed and changed in the last few years with a number of internal debates (Sayer, 1992; Archer et al. 1998; Collier, 1994).

To establish the tenor of CR, the chapter will outline a cursory introduction to the ontological and epistemological assumptions of CR. It also outlines the other philosophical approaches that were considered, as this was a novel journey and discovery for the researcher as well. This study uses a CR approach and therefore highlights the investigator's thoughts on knowledge through an epistemological position that includes tenets of CR. The tenets outlined explain the thinking underlying the considerations made during this study. The basic tenets of CR provide a philosophical framework for the study that includes discussing the ontological assumptions as well. Ontological study concerns itself with the nature of the subject, while epistemology is the question of how we know what we think we know about that subject. It is prudent to note that there is an ongoing debate concerning the blurred boundaries of ontology and epistemology when applied in research (Outhwaite, 1998).

In an organisational context, where this investigation takes place, structures, processes, events, individuals (interactions), groups and their behaviors may be construed as providing evidence of reality. In establishing a journey to realizing certain epistemological assumptions throughout the project, the researcher is merely attempting

to express current understanding and self-awareness of those underlying assumptions that guide this study. It would be impossible to outline all of the debates here so this discussion will be limited to major tenets and arguments that inform the focus of this investigation.

This following section considers the elements of CR to support and explain the underlying assumptions that guide the study. Consequently, some elements of CR are outlined to establish those assumptions. The approach and treatment of knowledge within the knowledge management literature will then be considered and discussed in light of those assumptions. The insights from this discussion will pave the way for an alternative way of viewing knowledge within the AC theory, to support the potential for learning.

2.2 ONTOLOGY

Although according to Fleetwood (2005), ontology matters when one addresses epistemology, the researcher reserves the use of ontology for when there is a specific argument about “being”. For this investigation, however, ontology will be considered to mean, *“the claims or assumptions that a particular approach to social enquiry makes about the nature of social reality”* (Blaikie 1993, p.6). The ontological influences will emerge while addressing the epistemological debates that have contributed to the development of the investigator’s position. Therefore, this chapter will not dwell specifically on the issues of “being”, rather, arguments are based on underlying assumptions of knowledge which relate to objectivism, subjectivism and from the lens of this investigative perspective.

Morgan and Smircich (1980) developed a continuum from subjectivist to objectivist which states that throughout the discourse of ontology, the world has been accepting various positions of reality, from socially constructed at one end, to reality as a concrete process of structure at the other. On one extreme end of the spectrum lies Objectivist ontology that opines a reality that is independent of the investigator, opting for an objective reality. This ontology discovers knowledge through counting occurrences and measures the extent of behaviors being studied (Jacquette, 2002). Comte the promoter of positivism consists of ontology with an *“...ordered universe made up of atomistic, discrete and observable events...”* (Blaikie 1993, p. 94) Subjectivist ontology sees a reality as subjective and socially constructed with the investigator and the object both involved. Interpretivist ontology involves a social reality that is seen as the product of processes by which social actors together negotiate the meanings for actions and

situations (Blaikie 1993, p. 96). Although constructivism posits the idea of knowledge as socially constructed, it does not encompass and address the possible existence of objects that are independent of a human. To maintain clarity and carve out a position in a rather discursive and ongoing ontological and epistemological debate, the objectivist ontology will be viewed in the context of Positivism. In addition, the subjectivist and CR ontology will be discussed in the context of Interpretivism. In keeping with the nature of this investigation, the elements of CR relevant to this investigation will be considered from an epistemological perspective.

Developed by Bhaskar (1978, 1989a, 1989b) CR is a philosophy of science, that is endowed with both ontological and epistemological features, hence a meta-theory (Reed, 2005; Burnett, 2007). Also, knowledge will be the underlying foundation and focus of this investigation in organisations. Cardinal et al (2004) provide an implicit backbone of this exploration into the inquiry of knowledge from a CR perspective within a social and organisational setting. The positivist approach is accepted as an alternative from which the interpretivist emerges. Spender and Marr (2005) extend epistemological considerations with a simple question of the nature of knowledge, as meaning or as an object. Knowledge for this study can be considered as both, i.e. meaning and object; as this flexibility creates opportunities for further discoveries of the nuances and complexity of organisational knowledge.

Knowledge as meaning, involves the human perspective to create that meaning in the use of common sense, personal experience, testimony of others, justified by other beliefs and, worked out by thinking (Cardinal et al. 2004). Knowledge in this investigation will also include the object. This would involve human interaction with objects and individuals within an organisational setting. Tension is then formed between the objectivist approaches in which,

“the knower adds nothing to the data, and the interpretivist frame in which knowledge is determined by some combination or melding of the phenomena to be known and the knower. . .since such meaning is underdetermined by the phenomenon itself” (Spender and Marr 2005, p.187).

Within the organisational context, “how” knowledge is acquired, “what people know”, “how do they know what they know”, and “how knowledge is produced” will be considered through the major tenets of CR. The selection of an epistemological stance developed from a view of the organisation, and the way in which knowledge appeared to

flow within the organisation may show evidence of the theory under investigation. AC and its influences need to be dissected so that one would be able to see evidence. Evidence may be seen when objects within the organisation interact. The view of individuals involved with the processes within the organisation may provide insight into why, where and how knowledge flows within the organisation. This investigation raised many issues of perception of individuals, interaction with physical things as well as other individuals. These interactions are also shaped by the structures that make up the organisation.

Epistemology in the literature addresses the nature of knowledge with such questions whether it is objective and measurable. Can knowledge be acquired or experienced? This question appears to raise further questions in a manner that infers there must be one answer. Assumptions of CR will provide the basis for how this investigation can take this integrated or simultaneous approach.

2.3 CRITICAL REALISM

Presumptions of CR include transcendental realist ontology (Archer et al. 1998) and an interpretivist epistemology and liberated axiology (Easton, 2010). Sayer (1992) provides the most detailed conventions that form the basic assumptions of CR. The following tenets outlined by Sayer (1992) provide a fundamental springboard for this study:

1. "The world exists independently of our knowledge of it.
2. Our knowledge of the world is fallible and theory-laden. Concepts of truth and falsity fail to provide a coherent view of the relationship between knowledge and its object. Nevertheless knowledge is not immune to empirical check and its effectiveness in informing and explaining successful material practice is not mere accident.
3. Knowledge develops neither wholly continuously, as the steady accumulation of facts within a stable conceptual framework, nor discontinuously, through simultaneous and universal changes in concepts.
4. There is necessity in the world; objects—whether natural or social—necessarily have particular powers or ways of acting and particular susceptibilities.
5. The world is differentiated and stratified, consisting not only of events, but objects, including structures, which have powers and liabilities capable of generating events. These structures may be present even where, as in the social world and much of the natural world, they do not generate regular patterns of events.
6. Social phenomena such as actions, texts and institutions are concept dependent. We not only have to explain their production and material effects but to understand, read or interpret what they mean. Although they have to be interpreted by starting from the researcher's own frames of meaning, by and large they exist regardless of researchers' interpretation of them. A qualified version of

- 1 therefore applies to the social world. In view of 4–6, the methods of social science and natural science have both differences and similarities.
7. Science or the production of any kind of knowledge is a social practice. For better or worse (not just worse) the conditions and social relations of the production of knowledge influence its content. Knowledge is also largely—though not exclusively— linguistic, and the nature of language and the way we communicate are not incidental to what is known and communicated. Awareness of these relationships is vital in evaluating knowledge.
 8. Social science must be critical of its object. In order to be able to explain and understand social phenomena we have to evaluate them critically” (p.5).

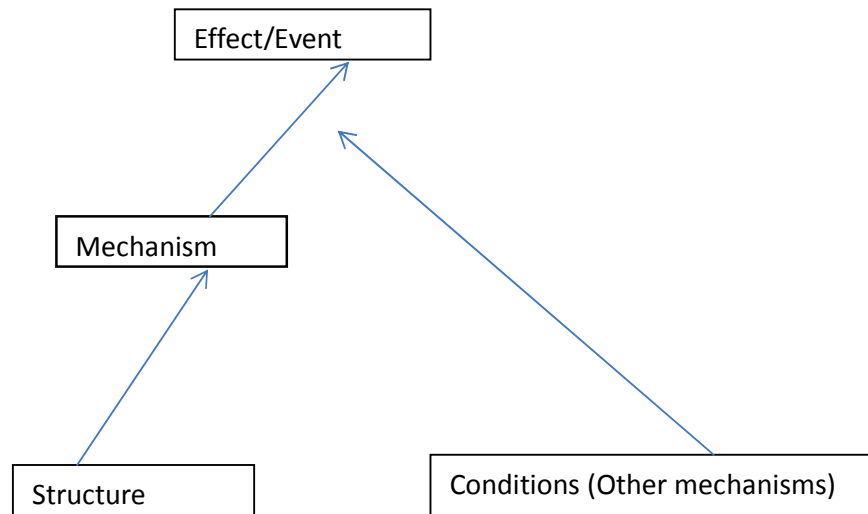


Figure 1 - Critical Realist view of causation

The CR view (Sayer 2000, p.15) is depicted in this diagram which provides an underlying view that represents a reality shaped by structures within a given environment. These structures are based on particular conditions that affect mechanisms and also influence events. They all influence each other at some point in time but not always and not in the same manner.

The CR views that are most relevant to this investigation focus on realities which are linked to the idea of a view of the world through individual lenses. In addition the levels of the CR approach address the underlying structures that influence mechanisms and in some cases processes which may provide a deeper view of learning in organisations. This approach allows for a deeper dissection of entities and structures that define them, and the relationships that are created when events occur. The conditions under which all of these interactions occur are also considered.

Assumptions of Critical Realism

This investigation is framed by main elements of CR as espoused largely by Sayer (1992, 2000). The assumptions are dissected to provide a visual that these notions include independence of knowledge, mediated access to knowledge and modes or stratified

reality, and the persons who are involved and their actions. In addition to engaging in this investigation, identification of objects, entities, structures, power and liabilities events, emergence, necessary and contingent relations and context need to be put in perspective.

Objects/entities

Critical Realists (Archer et al. 1998; Easton, 2010; Fleetwood, 2005) view objects or entities as the basic theoretical foundation for explanatory purposes and may include organisations, individuals, relationships actions and interactions, attitudes, resources, technology, and ideas (Easton, 2010). In addition, they may also be social (community) or material (physical, matter), multifaceted or simple, structured or unstructured (Archer et al. 1998; Fleetwood, 2005; Klein, 2004). Objects/Entities as individuals are expected to possess a distinctive set of causal powers, that is, *“dispositions that are generative of behaviour”* (Sayer 2000, p.85) by merit of for example socialization and education.

Entities are a divergent concept, contrary to the notion of variables that permeate conventional social research (Archer et al. 1998; Fleetwood, 2005). Investigating the flow of knowledge within an organisation may benefit from such an approach, as *“variables are measures of things and not the things themselves”* (Easton 2010, p.120). Sayer (1992, p.180) clarifies *“.... the concept of variable that is used in quantitative analysis is an indifferent one as regards causal explanation: variables can only register (quantifiable) change, not its cause”*. This alternate view fundamentally reworks the manner in which one may think about theory (Easton, 2010; Fleetwood, 2005; Mingers, 2004; Wikgren, 2005). Attention is redirected to the core nature and ability of the phenomena such as absorptive capacity that are investigated as opposed to their measurable properties.

Causal powers and liabilities

Objects and entities have causal powers and liabilities (Easton, 2010; Sayer, 1992). Although causality is a debatable concept, in simple terms, Sayer (1992) explains that it means, *“To ask for the cause of something is to ask ‘what makes it happen’, what ‘produces’, ‘generates’, ‘creates’ or ‘determines’ it, or, more weakly, what ‘enables’ or ‘leads to’ it”* He adds, *“.....particular interpretations (of causality) can only be justified in terms of their compatibility with our most reliable beliefs...”*(p.104). Therefore

causal powers depend on a network of assumptions that create a way of thinking about the world that one deemed appropriate. To put this in the context of this investigation, in the same way that technology or new knowledge may have the power to change an organisation so too does the organisation have the power to adapt the technology in a variety of ways (Fleetwood, 2005). Also, causal powers may or may not be exercised (Burnett, 2007). The possibilities and flexibility of this approach is boundless, specifically, and again to be clear, Sayer (2000) expands,

‘the recognition of the possibility that powers may exist unexercised and therefore what has happened or been known to have happened does not mean this is the limit of what could happen or have happened, this therefore makes it possible to understand how we could be or become many things which currently we are not’ (p 13).

The possibility to understand how we could become many things which currently we are not and the ability to act or not to act is a core element to this study. The boundless possibilities of the idea of CR brings the notion of alternative and multi-dimensional views of entities interacting in accordance to, or not, a theoretical path.

This discussion is incomplete without a consideration of a liability that may be viewed as a disposition towards the actions of other entities (Easton, 2010). For example a specific organisation may demonstrate problems with implementation of new knowledge. This conceptualization is useful for this study as it questions the entities that define the field of knowledge and learning in organisations as well as their relationship and their inherent powers and liabilities.

Events

Critical realists study events or outcomes (Sayer, 1992) essentially, external and visible behaviors or actions of individuals, when they occur, or in retrospect (Easton, 2010). Social science research methods generate data consisting largely of accounts from individuals, as direct observation remains a challenge (Collier, 1994; Fleetwood, 2005). For example in this particular case conducting research with a focus on knowledge in organisations, the literature indicates events that occur during the process are normally second-hand stories and are removed from the event (Easterby-Smith et al. 2008c). Processes in critical realism are important particularly because they depend on individuals through their own account to construct and reconstruct an arrangement of those events and social institutions (Burnett, 2007). When an event does not occur, critical realists

require an explanation as these occurrences may provide valuable lessons. An example of this is when a manager who intends to begin a process of change does not provide some strategic outcomes. The critical realist may question, what were the underlying factors of the consequences of not providing the strategic outcomes?

Structure of entities

Normally entities/objects are structured (Archer et al. 1998; Easton, 2010). Structure (Sayer, 1992) is “...a set of internally related objects or practices” (p.92). For example an organisation may be considered to consist of a cycle of other entities, such as individuals, groups, divisions and assets which all can influence each other. Structures are embedded within other structures (Easton, 2010) which create layers that may affect other layers forming the basis for complex relationships. To delve into this complexity, entities such as organisations may have group and divisional structures and relations, which are further complicated by individuals with specific personalities. And, to continue from the example of the individual as an entity, education and social structures are also factors influencing causal explanation. An individual may have been trained as a nurse and is expected to follow specific professional practices. In an emergency a nurse may not exhibit the same unsettled demeanor as an individual without that training. Or the reverse may occur in that a trained nurse may not display any of the expected professional characteristics. On that premise, Easton (2010) argues that there are two ways in which new knowledge can be treated. First as an integrated element of an organisation or it may be related to the organisation. The other view, which is an assumption of this investigation, is new knowledge as part of the structure of the organisation.

Emergence

In terms of critical realism entities may be analysed at a number of different levels of aggregation (Easton 2010, p. 121). Emergence is a major assumption in the critical realist view (Collier, 1994). Goldstein (1999) defined emergence as the development of unique and consistent structures, patterns and properties during the process of change in multifaceted environments such as organisations. Emergence refers to entities developing from lower levels of the strata or for example in this case the lower levels of the organisation. Emergence requires social connections between individuals and groups that form part of the organisation (Dobson, 2002). The results of these interactions are not easily attributed back to one particular element or interaction, neither are they predictable. The social factors and individual interactions create a complex mix which is not easily

dissected into equal parts. In terms of the individual, Archer (1995) argues that the reality that is experienced collectively is not reducible to the personal reactions of either of its members; nor is the subjectivity of the latter understandable without reference to the objectivity of the former (Burnett, 2007). In addition, the nature of entities at higher levels of the collection of entities and structures such as organisations may not be understood through a cumulative process such as a reductionist approach (Reed, 2005; Burnett, 2007). Therefore organisations cannot simply be reduced to the summation of their components, and therefore as a consequence addressing levels of analysis as an element of this investigation is a challenge for accessibility at varying levels. However, it is through the individual that the organisation is given its “life”, and hence the focus of this study.

Necessary and contingency relations

Sayer states “...*the relation between a **child**⁵ and a **mother** is necessary, in that what the object is dependent on its relation to the other; a person cannot be a **mother** without a **child** and vice versa*” (Sayer 1992, p.89). With reference to this study, a manager and subordinate for example have a necessary causal relation, as they cannot exist without each the other. Also, organisations are entities with structures and involve, for example the management of technology systems which may not always be electronic. Therefore, critical realists argue that there are two types of relationships that characterize entities; necessary and contingent (Archer et al. 1998; Fleetwood, 2005; Woodside and Wilson, 2003). Necessary relations originate from the nature of the entities engaged in the relation (Archer, 1995; Ackroyd, 2005). The relation between entities and the events they cause is normally substantial and diverse (Archer et al. 1998; Burnett, 2007). Technologies in organisations affect a wide range of ways of influencing each other. Entities are defined in terms of their necessary relations; therefore a person can for example ignore or use technology (Mingers, 2004). Furthermore, complex entities derive a myriad of relations that identify that specific entity as well as other related entities (Easton, 2010).

Necessary relations are flexible in that changes in one entity lead to changes in another, however, this depends on the nature and purpose of the event under investigation. Also, this change does not occur regularly, although this may happen (Archer et al. 1998). Also one entity may not be able to exist without the other, for example an individual can exist

⁵ Researcher’s changes in bold

without organisation, but not vice versa (Easton, 2010). An additional dimension is the notion of mutual definition, which is demarcated by the relations that an individual has with other entities. These referential and interdependent relations underline theoretical considerations (Wikgren, 2005). In building theories, concepts may refer to specific entities and the relations between them to produce a theoretical framework (Klein, 2004). In such examples, the relations between the entities are interdependent, and are the glue that binds the construct or phenomenon together (Danermark et al. 2002).

Contingent relations

Sayer (1992) states that a contingent relation happens when; *“it is neither necessary nor impossible that they stand in any particular relation”* (p.89). Contingent relationships between bodies can exist independently of each other, but can also influence one another. Sayer (1992) provides an example, *“The relation between yourself and a lump of earth is external in the sense that either object can exist without the other”* (p.89). Conversely he argues, *“... although a relation may be contingent, it may still have significant effects: thus, people may break up lumps of earth or be buried beneath them”* (p. 89). For example, individuals can affect and be affected by new knowledge, but the two can exist independently of that relationship. The nature of the relationship creates the difference between contingent and necessary relations. Sayer (1992) elaborates, *“.....the contingently related conditions are never inert, but are themselves the product of causal processes and have their own causal powers and liabilities”* (p.140). The main premise of a contingency approach is that within organisations change can be achieved in a number of ways (Reed, 2005). In addition and borrowing from Zeithaml et al (1988), *“...each way is not equally effective under all conditions; certain organisational actions or responses are more appropriate than others, depending upon the situation”* (p.39).

The AC framework developed indicates contingent relations between entities (See Chapter 3). Events are clarified through a mixture of necessary and contingent relations (Easton, 2010). There is need for a balance of the two relations as a largely contingent relation, would mean that each theoretical explanation would be distinctive and therefore unable to support any form of generalisation (Mingers, 2004). Sayer (1992) explains,

“...Structures can therefore be said to be ‘invariant under certain transformations’, that is, they can continue to exist while their constituents undergo changes in attributes which are not relevant to their reproduction” (p. 94).

The structure of causal explanation

The most fundamental aim of critical realism is explanation; answers to the question “what caused those events to happen?” (Sayer, 1992). The following is a basic example related to this investigation (Sayer, 1984),

Objects (an individual) having structures (knowledge and responsibilities, personality traits etc) and necessarily possessing causal powers (to persuade a another employee, who is another object with liabilities (to be rejected by employees, will under specific conditions get frustrated towards the end of the day; the employee sees the value in new knowledge and sees the potential which may result in an event (a assimilation of new knowledge), or alternatively under specific condition (the employee sees the need for the new knowledge, but circumstances are not suitable) will result in an event (no assimilation)).⁶

This scenario does not take into account the complexity of actual behavior. In addition, Critical realists argue that there are always alternative interpretations and explanations, however, the best current interpretation should be made.

Context

Context is simply “relevant circumstances”, with little indication about the relationship between specific entities and the environment other than it is potentially relevant (Easton, 2010). Critical realism requires that the entity be defined as well as the structure of the causal relationship. The question should be “in what ways may the external contingency affect the events that have occurred?” (Easton, 2010). This question forms the basis for underlying structures that this investigation intends to address.

Mechanisms

Mechanisms are “.... ways of acting of things” (Bhaskar 1978, p.14). In a social environment such as an organisation, critical realists use “social structures” as a term to refer to causal mechanisms such as rules, resources, relations, powers, positions and practices (Fleetwood, 2005). These powers may or may not be used, and can be seen as tendencies (Burnett, 2007), or may not be used to the extent that it can be recognised as such. Causal explanations identify entities and mechanisms that connect them and combine to cause events to occur (Easton, 2010). For purposes of consistency in the

⁶ This scenario was modified by researcher to relate to this investigation.

literature, generative mechanisms will be used (Tsoukas, 1989; Layder, 1990). A notable element to mechanisms in the critical realist convention transcends beyond statistical models and moves towards representing the complexity of the phenomena under study with a rich foundation of explanatory devices, which can be linguistic and metaphorical (Easton and Araujo, 1993). To clarify,

“A generative metaphor is not merely an ornate expression of similarities and analogies its author was already aware of, but is the source of new perceptions of similarity and analogy, picking out similarities and analogies that were unknown until the metaphor pointed them out and thereby brought them to the author's attention” (Lewis 1996, p.493).

A sample of these source metaphors include war, marriage, computer, cycle, life, garbage can and dance (Easton, 2010). As entities are social, they depend on human activity (Fleetwood, 2005), and therefore by means of their powers and liabilities act and cause particular events.

“When activated, particular mechanisms produce effects in “conjunctures”, which may be unique. According to conditions, the same mechanism may sometimes produce different events, and conversely the same type of event may have different causes” (Sayer 1992, p.116).

Time and place

Archer et al (1998, p.376) emphasizes temporality in their own approach and that of Bhaskar (1978). Fleetwood (2005) supports this and considers an additional dimension and states *“We need to consider the temporal locations where moments of agency occur...”* (p. 203). In whatever scenario, action is a continuous, cycle and flows overtime without definite beginnings and endings (Archer et al. 1998). In line with this critical realist view, MacIntyre (1981) recognizes that these dialogues or ‘traditions of thought’ are demonstrated in human behaviour but are subject to change and degeneration. These dialogues are often embedded within ‘supra-discourses’ (Scott, 2000) and these can be demarcated as the way a society or group of people realizes the nature of the world and how it can be known, specifically, their ontological and epistemological views. These also impact the type of dialogue functioning within the group but also the rate of degeneration of these dialogues.

An initial investigation into cyclical phenomena such as knowledge can be subjective. A marker to indicate a launch point is necessary to break into the cycle. Therefore, for transformation to occur human action is required. The processes of observing or investigating socially real entities are activity dependent. Discovering precisely who does and who does not do what, when and how allows us to see exactly which humans and what kinds of activity are, and are not, involved in the reproduction or transformation of knowledge (Fleetwood, 2005). The following section on epistemology attempts to establish the writer's position by answering a few questions and adding to the above mentioned epistemological approaches to scaffold this investigation. In addition, the treatment of epistemology in the knowledge management literature will offer another layer to a deeper understanding and grounding to this study. Integrating existing literature about managing knowledge and epistemological approaches will add more dimension to the discovery about the transfer of knowledge in organisations and by extension AC. For the purpose of this study the following section will provide synergies of the tenets of CR discussed above which are integrated in the epistemological approaches to knowledge management and knowledge transfer literature.

2.4 EPISTEMOLOGY

The ontological position outlined above establishes a major perspective on knowledge, that is, it is socially constructed (Sayer, 2000).

“Critical realism acknowledges that social phenomena are intrinsically meaningful, and hence that meaning is not only externally descriptive of them but constitutive of them (though of course there are usually material constituents too). Meaning has to be understood, it cannot be measured or counted, and hence there is always an interpretative or hermeneutic element in social science” (p.17).

To answer the question of “what is knowledge” depends on the individual perspective. Critical realists accept a reality independent of what an individual thinks, however, in addition they also accept (Wikgren, 2005),

“... the hermeneutic (interpretative) notion that knowledge is communicatively constructed, that our concepts and beliefs are historically generated and conditioned, and that the explanatory knowledge produced through realist analysis will always be open to challenge and subject to change on theoretical and empirical grounds” (p. 14).

In the past, treatment of knowledge use in organisations stressed its absolute, permanent character; however current development places the emphasis on its relativity (Scarborough and Swan, 2004) context reliance and continuity as well as dynamic interaction with the world and its subjects and objects. The emphasis on individual action means that the trend has advanced from a static, passive view of knowledge, and towards a more adaptive and active one. This echoes the development and treatment of knowledge in this investigation of AC.

Based on the interpretative nature of the reality outlined by critical realists (Easton, 2010; Fleetwood, 2005; Sayer, 1992), an interpretivist approach will guide this investigation. This is a cornerstone for the analysis and implies that complex social phenomena, such as information need, seeking and use, cannot be explained in terms of mechanisms or processes working at just one level, be it personal, cognitive, discursive or socio-cultural. It is in this vein that this investigation views knowledge and will investigate the construct of AC as previous research in organisational knowledge has focused largely on technology (Earwaker, 2005; Hislop, 2009). Currently, the focus on the individual requires more attention (Jashapara, 2007; Scarborough and Swan, 2005). The focus of previous research was centred on the technology rather than users (Cook and Brown, 1999) and knowledge management processes were referred as “*epistemology of possession*”. From this perspective knowledge is seen as an entity that individuals and groups own. The concept of knowledge as a commodity is emphasized in this perspective. This notion is consistent with the focus on ‘content’ as a major characteristic of the AC literature and puts into play the use of information and knowledge processes with the AC process. To date, the focus of knowledge management processes have been directly related to content and explicit knowledge. This investigation veers away from this conceptualization to contribute to the field in a different way by focusing more on tacit knowledge.

Although a CR approach will allow for a wide variety of both approaches (Easton, 2010; Fleetwood, 2005) the scope of the investigation sees knowledge as a process that goes through a variety of changes that are influenced by human activity. CR seems to infer a process of change and movement of the entity based on interaction with the human activity and structures. Therefore, the CR notion that knowledge is independent of the individual, when identification does not occur, is not the same idea as knowledge being objective. Rather the argument is that there is a possibility of existence, but when

identification occurs mediated access is triggered. The phases dictate the different states of knowledge as it seems to move with the knowledge management process with no set direction, but moving at will. These phases also emphasize the extent to which knowledge is embedded within and inseparable from human activities or practices (Foucault, 1980). Cook and Brown (1999) refer to this approach as ‘epistemology of practice’ highlighting the central role of humans in the conception of knowledge. It is based on the assumption that activity includes both physical and cognitive elements and that these elements are inseparable. Knowledge use and development is therefore regarded as a fundamental aspect of knowledge management. Gherardi (2000) adds “...*practice connects ‘knowing’ with ‘doing’...*” (p.28). Theoretically, this approach appears to be attuned with an interpretive perspective.

This approach is in keeping with the kinds of questions that this investigation seeks to answer or gain further understanding. Notwithstanding the contribution from the abovementioned authors, the interpretive approach can be summed under the following characteristics of knowledge, namely; (1) Knowledge is embedded in practice; (2) tacit and explicit are inseparable; (3) Knowledge is embodied in people; (4) Knowledge is socially constructed and culturally embedded; (5) Knowledge is contestable. This investigation will consider Knowledge primarily as a process. This focus does not dismiss the other ways in which knowledge can be conceptualized.

2.4.1 KNOWLEDGE EMBEDDED IN PRACTICE

The most significant, yet simple difference between positivist and interpretivist disputes the concept of knowledge and that is objectivity of knowledge as opposed to the inseparability of knowledge from human activity. Orlikowski (2002) argues that knowledge is inseparable from human activity. The CR orientation accepts this as knowledge independence; however, since the focus of this study is from the individual perspective, knowledge will be seen as socially constructed. The continuous nature of knowing and development of knowledge as occurring on an ongoing basis through the routine activities that people undertake is an assumption (Cook and Brown, 1999; Jashapara, 2007; Snowden, 2002). This infers and emphasizes the critical role of the individual in activities related to or involving the use and or development of knowledge. It also refers to all knowledge work including using, sharing, developing, creating it and all require some level of activity (Blackler 1995, p. 1023), which is the focus of this study.

Critical realists view knowledge as being socially produced, this allows for social structures and humans to influence each other (Collier, 1994; Sayer, 2000). In this investigation, individuals will share experiences about activities that they participated in or are carrying out as they interact with elements and other humans around them within the organisational structure. Blackler (1995, p.1023), adds “ *rather than regarding knowledge as something that people have, it is suggested that knowing is better regarded as something they do*”. This process of knowing which involves the individual is part of many levels of an organisation from managerial, professional and manual activities.

2.4.2 TACIT AND EXPLICIT KNOWLEDGE ARE INSEPARABLE

The interpretivist approach rejects the simplicity of taxonomy based approach in categorizing knowledge into distinctive types which are independent of each other. However, the value of this may be seen where those categories are positioned when considering them within a knowledge process cycle. Williams (2008) suggests that with complexity inherent in knowledge process cycles within organisations, established taxonomies may be used as markers to demonstrate change at the various stages of knowledge as it moves through processes within an organisation. A tenet of CR states that knowledge is transient (Archer et al. 1998; Bhaskar, 1978; Collier, 1994), which means that is not permanent in any particular state, but changes shape according to events, social or structural as in organisations.

Tsoukas (1996) discusses dichotomies and suggest that tacit and explicit, and individual and group categorizations are not entirely helpful, since they mask the extent to which these components are inseparable and mutually defined. Blackler (1995) expands on this idea and adds;

‘...knowledge is multifaceted and complex, being both situated and abstract, implicit and explicit, distributed and individual, physical and mental, developing and static, verbal and encoded’. (p. 1032)

CR supports this position, in that tacit and explicit knowledge represents two aspects of knowledge which are inseparable, and more significantly are mutually constituted (Tsoukas, 1996; Werr and Stjernberg, 2003). Sayer (2000) lends support through one of the tenets of CR, “*social structures shape and place individuals in a position to transform and be transformed by the very structures that shape them*”. Snowden (2002) extends this further and argues for a cyclical conceptualization rather than the linearity of the tacit - explicit continuum (Brown and Duguid, 2001; Tsoukas, 2003; Williams, 2008).

The issue of time is another factor in the CR literature and is inferred by Polanyi (1969), who contributes to the discussion by delving deeper into varying possibilities of knowledge, “ *The idea of a strictly explicit knowledge is indeed self-contradicting; deprived of their tacit co-efficient, all spoken words, all formulae, all maps, and graphics are strictly meaningless*” (p. 195). The CR sees the change of knowledge overtime so for example even the codified knowledge is what it is for a period of time until social and or historical circumstance changes it. Therefore this approach suggests that explicit knowledge is one representative of a time, with social and historical implications and related to organisations which apply to particular events.

2.4.3 THE INDIVIDUAL AND KNOWLEDGE

The argument that knowledge is embodied in people stems from the previous position that knowledge is embedded in practice and tacit and explicit are inseparable (Jashapara, 2007; Easton, 2010). Hence, knowledge is embedded in work practices and is simultaneously embodied and developed through experiences by the very workers who carry out these practices. Furthermore, tacit and explicit knowledge is therefore mutually constituted, and since it is a personal activity, there will always be an element that is left unseen and unknown, that cannot be shared and is not explicit. While one may convert tacit knowledge to explicit knowledge, the interpretive approach argues that the process cannot be complete. Polanyi (1983) argues that knowledge cannot be articulated, and individuals know more than they can tell. Conversely, the positivist perspective argues that explicit knowledge is complete.

However, if one considers a scenario where an apprentice learns from a master, the process may require the two parties to communicate, interact and work together for a period of time. The Master does not pass on all his knowledge to the apprentice, even if he would like to. In addition, there are still things that he still continues to learn, which underscores the idea that knowledge is constantly in motion. Also, although the apprentice will take on the explicit knowledge passed on to him, he will also add and extend to that explicit knowledge his own tacit knowledge. Tsoukas (1996, p. 39) in what he describes as “indeterminacy of practice” states that; ‘*the essential distinctiveness of all situations... individual actions require them to continually make personal judgments*’. These judgments and inferences are made despite explicit and well defined rules. Besides, Clark et al (1995) also raise the question of 'groundedness of

perspectives', where individual actors bring their own perspectives, values, and knowledge to bear on any given situation, and indeed their individual constructions of reality. This also questions the levels of reality that define knowledge that is accessed through mediation by various actors at different levels of an organisation. These actors access this knowledge through the social constructions that have framed their realities. This will be discussed further in the following section.

The argument for research to be value free and belief neutral may be difficult (Guba and Lincoln, 1994) when considering the issues above, however the complexity inferred are very real to the researcher. CR argues that the perspective of actors through mediated access provides another angle to the way in which knowledge is embodied in people (Sayer, 2000). As argued by Fleetwood (2005) the world cannot be changed unless it is adequately interpreted. Hislop (2009) sums up the influencing factors when he states;

“Knowledge/knowing – involves the active agency of people making decisions in relation to specific circumstances they find themselves in spite of the formal or structured and explicit knowledge that they may have acquired”.(p.39)

In addition, actors can also be influenced by the social environments in which they work.

2.4.4 SOCIAL CONSTRUCTION OF KNOWLEDGE

The CR perspective adds the assumption of mediated access to define how this knowledge may be accessed. The practice base perspective argues that all knowledge is socially constructed in nature which suggests subjective features that provide grounds for viewing knowledge as fallible. Further basis for this view point is premised on the nature of language, the inherent values and its nuances in transferring knowledge.

Since the nature of language is socially attributed, actors within particular contexts are then bounded by the extent of language interpretation, adaptation, and use (Sayer, 1992; Tsoukas, 1996). Boland and Tenkasi (1995) draw on the terms “perspective making” and “perspective taking” where the former allows for the development of knowledge and understanding which involves reading /interpretation. The latter involves an active process of meaning construction /inference. An example of this may be attending a workshop where the presenter is sharing experiences on a particular issue (this may include report and other documents and PowerPoint presentation). An interpretive approach assumes that the report is partially explicit knowledge. The presenter

constructed meaning of knowledge by presenting knowledge of experiences through language with different workshop participants. Through this workshop activity, a further range of meanings and analysis is also constructed by the participants.

Baumard (1999) posits a further layer to this position and suggests that the meanings people attached to language and events are shaped by the values and assumptions of the social context in which they live and work. Also, some writers suggest that Nonaka and Takeuchi's 1995 SEC model of knowledge creation is not widespread as first indicated. The arguments suggest that Japan's social and organisational traits which are specific to Japan (Glisby and Holden, 2003; Weir and Hutchins, 2005) are given deeper consideration when considering use of the model. This suggests that these socially constructed inferences are one of the factors that persuade actors to determine what knowledge is relevant in any given situation.

2.4.5 KNOWLEDGE IS CONTESTABLE, FALLIBLE

In clarifying their position, CR argues that even if knowledge is accessed through mediation that does not mean that it does not exist independent of knowledge. Also, Hislop (2009) brings into play a CR inclination when he states,

“ ... competing conception of what constitutes legitimate knowledge can occur where different groups/individuals develop incompatible and contradictory analysis of the same events, which may lead to conflict due to attempts by those groups to have the knowledge legitimated”. (p. 41)

Hislop (2009) seems to infer that there is an ulterior motive when individuals see the same events differently. CR assumes that there are multiples realities (Archer et al. 1998). The differing realities trigger a distinction of exactly what kind of knowledge is important and reinforces Williams (2008) argument when he says we need to look at the process of knowledge since processes and people vary. Hence, it gives an opportunity for a qualitative case study as an appropriate research methodology to focus on the flow and absorption of knowledge within an organisation.

Delving deeper into organisational knowledge also involves locating knowledge. Blackler (1995) provides examples of knowledge connectedness in management problems particularly where organisations are geographically dispersed or when extremely large organisations have to merge required knowledge. Brown and Duguid

(2001) highlight an epistemic difference between divisions within organisations that affect the vibrancy of knowledge sharing process. According to Tsoukas (1996),

“...the key to achieving coordinating action does not so much depend on those ‘higher up’ collecting more and more knowledge, as on those ‘lower down’ finding more and more ways to get connected and interrelating the knowledge each one has’. (p. 22)

Striving for knowledge sharing may require working towards an organisational environment with rich social interactions and immersed in practice, with a keen role played by management in facilitating these attributes. Boland and Tenkasi (1995) support this by defining this environment “...a process of mutual perspective taking where distinctive individual knowledge is exchanged evaluated and integrated with that of others in the organisation...” (p.358). The researcher’s perception of context which frames this investigation will add definition to the position articulated and forms the basis of this study.

SUMMARY

A process approach to knowledge or “*knowing as a process*” is viewed as a social construct, developed, transmitted and maintained in social situations (Berger and Luckmann, 1967; Blackler, 1995; Tsoukas, 1996). As indicated in the previous sections on contestable and fallible knowledge, alternative views of knowledge may exist simultaneously and may contribute to a further understanding of the concept. The main goal of this conception is to understand how knowledge is created, expressed, shared and justified as true (Empson, 2001). Throughout this investigation, the process of action and interaction of actors, and the roles that they play at different levels within an organisation is a critical element to knowledge as a process within the workplace (Brown and Duguid, 1991; Pentland and Feldman, 2007). Critical realism creates a challenge to apply in research exercises. This epistemological discussion is an indication of the thinking of the researcher. The researcher also acknowledges that fulfilling many of the ideas will be a constant challenge in the realistic confines of this study.

This chapter has explored the basis for this study in terms of ontological and epistemological notion. Specifically, the tenets of CR were discussed and the perceived value of the knowledge was also explored. In addition, the approach to knowledge management and knowledge transfer were addressed to provide an interpretivist view of

the strategy that will be used to frame this investigation. The ontological and epistemological stance explored in this chapter establishes a flexible and open approach to the investigation of learning in organisation through the construct of AC. In an organisational setting, the unpredictable and intricate nature of the interaction of actors, structures and the flow of knowledge creates a rather complex environment. Critical realism is an appropriate consort for a case study research. It justifies the study of various situations, regardless of the number of research units involved. However, the process involves thoughtful and in depth research with the objective of understanding why things are as they are (Easton, 2010). Also, Bhaskar (1989b), gives support to carrying out realist research and states: *'At its core, critical realism rests on the assumption that the accounts of the research participants are valid scientific data that can lead to consequential social transformation if properly interpreted'* (p. 271).

CHAPTER 3: ABSORPTIVE CAPACITY: A LITERATURE REVIEW

3.1 INTRODUCTION

This review is a synthesis of related facets that affect the emergence of absorptive capacity (AC) within an organisation. This chapter extends tentatively to a number of related literatures to explain the background of AC learning processes and the associated influences of power and politics. This analysis offers an overview of a number of theoretical and empirical threads of literature that aim to trace the AC learning construct within the learning literature as well as in relation to power and politics through levels of analysis within organisations.

This is achieved by addressing the significance of AC and the knowledge sharing associated with learning that occurs in a social organisation. This aspect of the literature identifies ways of interaction that have been established in the AC literature. The structure and form of the organisation (public and private) is given attention, to demonstrate the effect on aspects of AC namely new knowledge (NK). The concept of levels of analysis emerges from this literature since the intra-organisational and movement of NK within the organisation is the focus. The above strands of the literature are underpinned with the power and political literature through the focus on individual actions and interactions, which also provides insights to why AC and knowledge sharing occurs or not, and how.

Within this frame the trigger for AC is examined to provide the foundation for features of NK that will be traced in the organisation. This approach is followed by the relationship to prior related knowledge and influence of individual actors and their actions in the AC process. Knowledge sharing and the ability to recognise the value of NK is also addressed while giving attention to the actions related to the assimilation of this NK. In the flow of NK within divisions of the organisation, an overlap of activities is assessed between individuals interacting for the assimilation of this NK, and the division performing their role in response to the new strategy. Transformative learning is viewed within the division, where knowledge sharing actions and opportunities are examined in order to understand activities related to transforming NK and in what ways it may differ from the exploratory learning activities. A specific example of the process of exploitative learning is offered, through emergent and prescriptive learning strategies.

The tenor of this investigation shifts from treating AC as something distinctive that an organisation owns (Lane et al. 2006; Lewin et al. 2011). It finds its value in examining

the internal relationships, interactions and actions of the processes by which AC develops. This is in keeping with Cohen and Levinthal's work which clearly includes the need to understand the internal organisational dynamics to facilitate the ability to recognize, assimilate and utilize useful external knowledge. Internal AC processes consist of formal and informal routines, related to the management of a variety of selection and replication processes; enabling conception of new ideas, selecting ideas for development; reflection⁷ and maintenance activities; assimilating new knowledge, sharing it internally and exploiting it; managing adaptive tension and pacing rate of change; replacing old practices and integrating superior capabilities; sharing of superior practices within and across divisions (Lewin et al. 2009, p.10). This can be seen in the innumerable ways that organisations share information and knowledge, which can include retreats, meetings, workshops, print and electronic communication. The nature of knowledge quality is also explored in the forms of intrinsic, contextual and actionable. This thesis concentrates on forms of knowledge associated with the process of applying new technology as well as other forms of knowledge that exist in the research environment. This may include knowledge related to specific professions that are also applied and integrated through the AC process.

The notion of technology adoption was not used due to the approach to this investigation. The researcher did not assume prior to collecting data that technology adoption was the main focus to explain the phenomenon. In addition, this investigation moves beyond simple adoption and extends into use and application for learning within an organisation. Also, AC appeared to provide a wider scope and promise to observe different types of information and knowledge interacting in relation to learning. This investigation focuses on the individual perspective and the behaviours associated with absorbing NK. The new knowledge is not necessarily technological and may not always be associated to technology. Rather the behaviours and actions are of prime concern for this investigation. Since this review is established and emanates from an individual perspective, the general focus of change management literature that stems largely from the traditional management perspective falls outside of its scope. This investigation has adopted a perspective from an individual and critical stance as indicated in Chapter 2 to provide an alternative perspective to learning and the potential to innovate.

⁷ This suggests that Absorptive Capacity also requires formal reflection and updating routines. (Lewin et al. 2011)

From an AC point of view, the individual perspective has been emphasized through research by Jones (2006) and Easterby-Smith et al (2008a). Uotila et al (2010) supports this angle on AC processes by proposing that deeper understanding of AC requires a closer view as a dynamic capability. Consequently, a deeper study of the elements of AC processes is necessary. This includes attention to the actor's ability to identify, recognise the value and acquire new knowledge that is necessary for effective internal processes. The actor's routines and processes that facilitate learning through the newly acquired knowledge are also important. In addition, the actor's ability to develop and distill the processes that allow for the integration of prior knowledge and newly assimilated knowledge is also considered. All of these processes depend (Lane et al. 2006) “.... *on the organisation's ability to share knowledge and communicate internally*” (p. 838). From an ecological and multilevel perspective, this approach will consider individuals actions and interactions, their stated intentions, environments, and organisational structures.

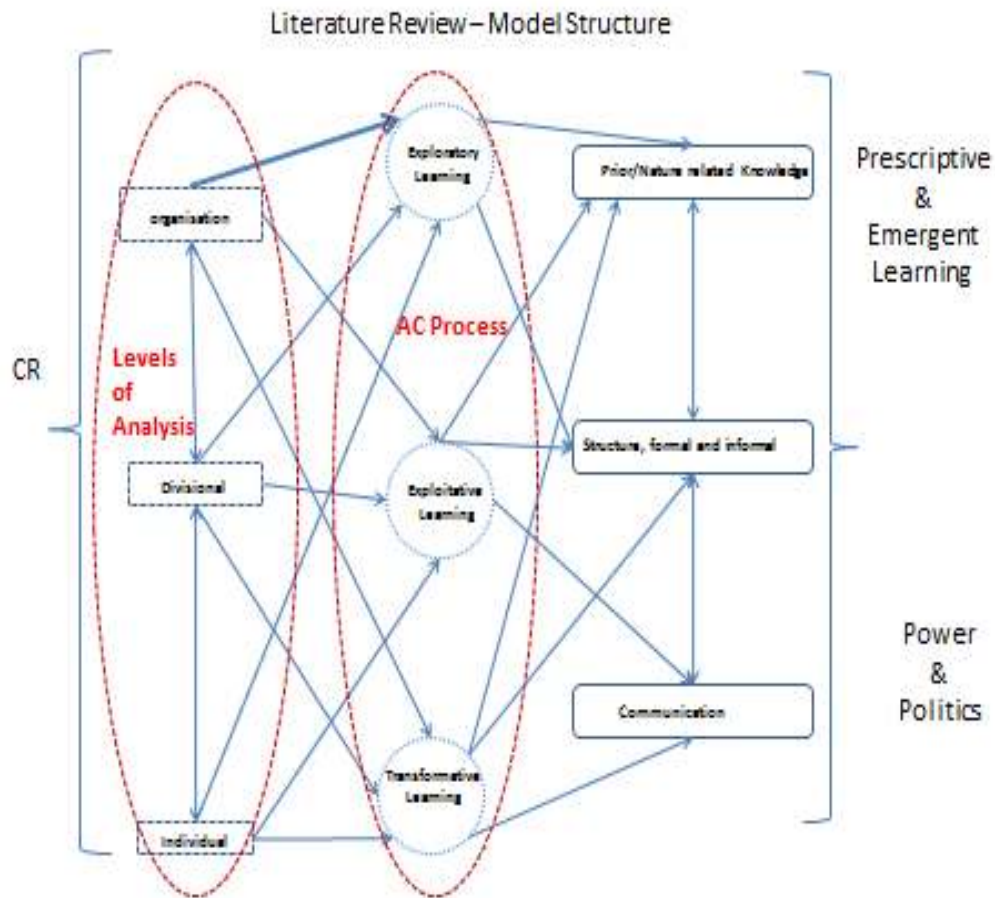


Figure 2 – Initial conceptualization of Absorptive Capacity

This diagram represents the various areas within the review of literature that relate to the investigation under discussion. These are areas that intersect when discussing the behaviours and actions during the AC process. It also represents the ideas under review that relate to or influence AC within the organisational context.

3.2 DEFINING ABSORPTIVE CAPACITY

There has been a range of definitions for AC. According to the literature, Cohen and Levinthal (1990) have provided the initial definition,

“the ability of a firm to recognise the value of new external information, assimilate it, and apply it to commercial ends is critical to its innovative capabilities” (p. 128)

Cohen and Levinthal coined this term in two papers. In 1989, the first paper *Innovation and learning: the two faces of R&D*, proposed that in addition to generating new information, research and development (R&D) enhances a firm’s capability to incorporate and take advantage of current available information. This paper also provided an alternative to why some firms will spend and others will not as technological knowledge is seen as a public good (Arrow, 1962; Nelson, 1959). Cohen and Levinthal (1989)

argued that low cost in acquiring external knowledge at the time of learning can be attributed to money already spent in developing the ability to, “*identify, assimilate and exploit knowledge from the environment...what we call a firm’s learning or absorptive capacity*” (p. 569).

Cohen and Levinthal (1989) proposed that since external technological knowledge is critical to business improvement, “*absorptive capacity represents an important part of a firm’s ability to imitate new processes or product innovations, to create new knowledge...*” (p.570) and therefore compete. Instead of simply learning-by-doing, where organisations improve on what they do, AC provides the unique opportunity to create and develop something new, to innovate. Cohen and Levinthal (1990) suggest that knowledge is entwined with technological performance. In relation to the acquisition of external technological knowledge, this line of argument raises the question of whether firms only acquire knowledge when they know that they need it. It also questions whether or not firms acquired too much knowledge. Another question rests on whether firms acquired new knowledge on the assumption that this knowledge does not exist within the organisation.

The 1989 paper in the Economic Journal establishes AC in economic theory and related to the field of technological change. It also reflected the times as Tilton (1971) explains, that in-house R&D departments provided the organisation with the technical capability that would maintain information on latest developments and in turn would allow for the assimilation of new technology developed somewhere else (Cohen and Levinthal, 1989). According to Cohen and Levinthal (1990) the individual is the basis and initiator of AC as a learning capability. The potential for dynamism of AC stems from approaching the construct as a process (Easterby-Smith et al. 2008a; Lane et al. 2006; Zahra and George, 2002). The 1990 paper by Cohen and Levinthal bridges the economic and organisational literature and includes research about individual cognitive structures, and attempts to bring out the underlying process element. Cohen and Levinthal (1990) expand on the AC concept and consider a fundamental aspect, prior related knowledge, which also includes awareness (where, when, how it is used) of what knowledge the organisations owns. This brings into play the idea that, according to Nelson and Winter (1982), knowing is something that humans do. Cohen and Levinthal (1990) proposed that an organisation’s AC is contingent upon building on prior investments in a member’s AC. In addition, AC grows cumulatively and relies heavily on past decisions (Zahra and George, 2002).

However, the most vital element of this construct rests on the organisation's ability to share knowledge and communicate internally.

The literature shows that the majority of research in this field use AC as a minor element or a taken for granted term (Lane et al. 2006). Lane et al (2006) offer explanations that indicate that the empirical focus on R&D rather than the social and cognitive factors associated with organisational processes may have contributed to the reification. Recent literatures revisit aspects of AC from Cohen and Levinthal's original contribution. Todorova and Durisin (2007) emphasize the dynamic capability (DC) link that they argue Zahra and George (2002) overlooked. Todorova and Durisin (2007) argue that Zahra and George (2002) do not integrate the feedback cyclical aspect of capabilities to develop dynamic characteristics, and therefore again limit the complexity of the construct. Although, Todorova and Durisin (2007) may have a point theoretically, again these claims have yet to be explored. Easterby-Smith et al (2008a) see AC as "*the ability to locate new ideas and to incorporate them into an organisation's processes*" (p.2). Easterby-Smith et al (2008a) immediately frame their argument in terms of the dynamic capability nexus and the lead into AC as a process which needs to be examined internally.

The recent literature suggests that a possible second wave of AC has begun with an examination of organisational processes. As mentioned previously, content or explicit knowledge has been the dominant knowledge type used in the study of AC. However, Lane et al (2006) argue that content is a necessary, but not sufficient condition for AC to be effective. One definition born out of an extensive literature review is worth highlighting. Lane et al (2006) redefined the AC definition:

Absorptive capacity is a firm's ability to utilize externally held knowledge through three sequential processes: (1) recognizing and understanding potentially valuable new knowledge outside the firm through exploratory learning, (2) assimilating valuable new knowledge through transformative learning, and (3) using the assimilated knowledge to create new knowledge and commercial outputs through exploitative learning. (p. 856)

Lane et al (2006) combined insights from the limitations of the original definition. They considered the more process oriented approach instead of Cohen and Levinthal's limitations of "a firm's ability", R&D and the content assumption of prior related knowledge. To expand on the process approach, they included ideas from Levinthal and March (1993) of the need to balance exploratory and exploitative learning. The two

terms were then linked with transformative learning where new knowledge and existing knowledge are integrated, providing further opportunity for existing knowledge to be used in innovative approaches (Garud and Nayyar, 1994; Zahra and George, 2002).

The movement of AC to a more socio-cognitive environment has put it under scrutiny of the organisational literature. AC raised a few concepts of learning, cognition, communication, sharing and organisational behavior which essentially makes it a complex construct. For example, the Garbage can model (Cohen et al. 1972), which relates to organisational choice, potentially can affect the levels of AC as it is proposed at both the individual and organisational level. It may affect AC as individual and divisional behaviours are related to decision making and may be widely dispersed throughout the organisation. In addition, March's 1991 paper on exploration and exploitation in organisational learning raises critical issues about individual behaviors in organisations that may play a vital role in the individual cognitive conceptualization within the AC process. These concepts and relationships will be explored in this current study. In order to understand AC's development as a process, associated links require appropriate attention. Therefore the following section outlines the related development of the DC concept.

3.3 ABSORPTIVE CAPACITY AS A DYNAMIC CAPABILITY

The proposed relationship between AC and DC may be seen when asking questions such as; how are DC's developed, integrated and applied in an organisation? It appears that they move along a continuum to support and modify an organisation's resource base and supposed sustainability (Barney, 1991). For example, in a firm, AC can exist in terms of skilled and technical workers, and also equipment that may become available to potentially create something new. Specifically, an alternative way of storing and distributing information because of new technology may infer that a learning process may have occurred. AC requires a combination of learning capabilities in order to recognise external knowledge (to the firm and divisions), assimilate and utilize it internally.

DC would be the next step of that stage when a company may demonstrate a consistent and successful ability to effectively produce a particular product. This suggests that AC and DC are critical at different stages in the process of determining performance and in slightly different ways that define them so distinctly. As noted above DC writers argue

that there are varying levels of DC's, as there are conditions for this particular state. It is noted that catalysts for DC appear to stem from the managerial and strategic level. This is an opportunity to consider that through AC the individual perspective may provide other catalytic points within the organisation. Conveniently, this raises a very simple question; under what specific conditions can AC become a DC?

Some important observations about DC by writers such as Grant (1996) and Pisano (1994) suggest that DC's are antecedent capabilities and strategic routines that organisations use to change their resource base. DC's go through processes of acquisition, shedding, integrating and recombining to construct value-generating strategies. Henderson and Cockburn (1994) and Teece et al (1997) elaborate, that DCs are the drivers behind the creation, evolution and recombination of resources that spring into competitive advantage. Eisenhardt and Martin (2000) define DC in support of Teece et al (1997) and similar to Kogut and Zander (1992) (brings in combinative capabilities) as:

“The firm's processes that use resources-specifically the processes to integrate, reconfigure, gain, and release resources-to match and even create market change. Dynamic capabilities thus are the organisational and strategic routines by which firms achieve new resource configurations as markets change emerge, collide, split, evolve, and die” (p.1107)

The above conceptualization suggests an ecological approach to organisations, as it refers to the growth, adaptation and death of the organisation which emanates from the external organisational environment. Wang and Ahmed (2007) provide a hierarchical perspective to DC and its antecedents. They propose *zero-order* to describe firm resources from which organisational capabilities emanate. Capabilities follow and are termed *first-order*, when firms demonstrate their ability to deploy resources to reach a particular goal. Core capabilities are considered second-order and are referred to as a bundle of an organisation's resources and capabilities that are strategically important to its competitive advantage. DC is a third-order and focuses on an organisation's attention to renewal, reconfiguration and re-creation of resources capabilities and core capabilities to respond to its external environment.

DC explanation refers to organisational ability and represents managerial and organisational processes or “*patterns of current practice and learning*” (Teece et al. 1997, p.518). As mentioned in the previous section, strategic decision making and exit routines

reconfigured processes so that “*firm-specific assets are assembled in integrated clusters spanning individuals and groups*” (Teece et al. 1997, p. 516). Changing or modifying for example a combination of the organisation’s physical, social, cognitive and economic resource base, may allow dynamic capabilities to provide opportunities for new strategic options or “paths” for the firm (Eisenhardt and Martin, 2000; Helfat et al. 2007). Change is stimulated by a variety of factors and AC and DC literature point to the external environment.

AC literature (Easterby-Smith et al. 2008a; Lane et al. 2006; Todorova and Durisin, 2007; Zahra and George, 2002), suggests that AC is a subset of DC. This claim is also supported by the organisation learning literature (Van Wijk et al. 2011; Vera et al. 2011). However, its multilevel (individual, divisional and organisational) characteristics imply that it may have the potential to be a DC in its own right. For example, if the process model (Lane et al. 2006) is applied, the learning capabilities (exploratory, transformative, and exploitative) proposed, when recombined with strategic organisational decision making may develop a DC that allows a firm to develop an ability to continually learn. There is a difference in assumptions in this example. The assumption here is that knowledge and know-how is a commodity in itself, whereas the assumptions on which writers such as Nelson and Winter (1982) first developed capabilities were based on manufacturing as the commodity.

The concept “location of ideas” (Helfat et al. 2007) and ‘manifestation of ideas’ can be associated with DC which is ultimately about change and adaptation. There are many forms of DC and because they depend on “*the capacity of an organisation to purposefully create and extend, or modify its resource base*” (Helfat et al. 2007, p.1); they create new opportunities for organisations to compete through internal development, acquisitions and strategic alliances which are built on mature organisational foundations. DC itself is complex, with the ability to support organisations to maintain sustained competitive advantage in terms of new product development. It is important to note that DC’s minimize individual function in the process. This is contrary to the stated value of the individual in the AC process (Cohen and Levinthal, 1990). DC appears to demonstrate change, whereas the presence of AC provides the opportunity to change. Eisenhardt and Martin (2000) extended the above definition: “*the firm’s processes that use resources... to match and even create market change*” (p. 2), in this formation, dynamic capabilities took the shape of organisational processes. Zollo and Winter (2002) also contend that DC

begins from learning, and provides grounds for the link between the two constructs, since AC has been seen as a learning capability. Furthermore, Collis (1994) clarifies and states that learning mechanisms shape DC in two ways: firstly, directly through operating routines and secondly, implicitly through the changing paths of dynamic capabilities.

AC requires a combination of learning capabilities in order to recognise external knowledge (to the firm and divisions), assimilate and utilize it internally. DC would be the next step of that stage when a company may demonstrate a consistent and successful ability to effectively produce a particular product. This suggests that AC and DC are critical at different stages in the process of determining performance and in slightly different ways that delineate them so clearly. AC is viewed as a DC because it is instrumental in changing and reconfiguring organisational processes and resources (Vera et al. 2011). AC has benefitted from the DC literature as it builds from that field and incorporates strategic approaches to learning elements in organisations (Easterby-Smith et al. 2008a).

3.4 ABSORPTIVE CAPACITY: A LEARNING PERSPECTIVE

To establish a base for the development of AC, this study assumes a learning perspective and furthermore uses the knowledge processes to provide evidence of this learning. The theoretical and empirical literature is extensive and surpasses the scope of this investigation. AC has been used in a wide variety of management literatures and may be positioned within the following literatures; dynamic capability (Teece et al. 1997; Zollo and Winter, 2002), organisational learning (Easterby-Smith, 1997; Akgun et al. 2003), and knowledge management (Chiva and Allegre, 2005; Oshri et al. 2006). AC is positioned within these literatures, and finds its value in one particular form of learning which emanates from sources external to the organisation (Lewin et al. 2011; Vera et al. 2011).

In the seminal work of Cohen and Levinthal (1990) there is a clear responsibility of learning (assimilating and applying new external knowledge) for the organisation through the initial definition, “*the ability of a firm to recognise the value of new external information, assimilate it, and apply it to commercial ends is critical to its innovative capabilities*” (p. 128). The learning aspect is made clear; however the precise relationship between AC, learning and the distinguishing features of the two are still vague (Easterby-

Smith and Lyles, 2011; Sun and Anderson, 2010). The link between AC and learning (Fiol and Lyles, 1985; Kedia and Bhagat, 1988; Levitt and March, 1988) predates Cohen and Levinthal's contributions (Volberda et al. 2010), but nevertheless their articles support this argument. Cohen and Levinthal (1990) laid a foundation for a deeper understanding of AC when they also put forward that organisational mechanisms play a significant role in determining the level of AC (Lewin et al. 2011). The transfer of knowledge within and between organisational units, the structure of the organisation and effects on communication practices form significant factors in the AC process (Szulanski, 1996; Jansen et al. 2005).

The recursive notion that R&D and prior related knowledge are the primary determinants of AC is widely supported (Ahuja, 2000; Cockburn and Henderson, 1998; Lane and Lubatkin, 1998; Lyles and Salk, 1996; Mowery et al. 1996; Tsai, 2001). Lewin et al (2011) argue that R&D, patent and citations only indirectly represent and capture elements of capabilities with regard to valuing new external knowledge and technological information. Therefore these indicators do not sufficiently represent the nature of AC. Prior related knowledge also plays a major role in AC, as Reagans and McEvily (2003) argue that the concept of knowledge accumulation shows that individuals absorb knowledge more easily when they already have some common knowledge in terms of expertise, training or background characteristics. This argument does not enlighten on prior related knowledge associated with the history of change in the organisation. The debates on AC as a form of learning under the umbrella of organisational learning (Easterby-Smith et al. 2008a; Lewin et al. 2011), are relevant in so far as they explain the value of learning in general and the links that provide examples and similarities in which AC can be further developed. New external knowledge, a major characteristic of AC has been defined predominantly as R&D (Lane et al. 2006; Van den Bosch et al. 2003), and is also one reason for the limiting and structural perspective of AC (Easterby-Smith et al. 2008a; Jones, 2006; Volberda et al. 2010).

Although Cohen and Levinthal (1990) used R&D as proxy, they also established a foundation for future research by suggesting other organisation mechanisms that influence AC. These mechanisms include the way in which knowledge is transferred, internal communication networks and cross functional interfaces. There are a limited number of studies (Jansen et al. 2005; Lane et al. 2001; Lichtenthaler, 2009) that dissected three main elements of AC. To increase the visibility of elements of recognition, assimilation and utilization of AC a penetrative approach to internal

mechanisms is proposed. Easterby-Smith et al (2008a) support this line of inquiry in terms of learning by advocating the integration of ideas and call for the examination of internal organisational processes of AC since the inter-organisation approach has so far dominated the literature (Volberda et al. 2010). This call emphasizes the need to consider the nature of NK in a different light. In extending a deeper understanding of the learning capabilities of AC, this study considers a context where knowledge quality is disputed and R&D is not a foothold.

3.5 KNOWLEDGE QUALITY

To support the knowledge quality idea, a brief review of data and information quality is necessary as a foundation to its use in this investigation. Data quality dimensions and measurements have been investigated (Goodhue, 1995; Cappiello et al. 2003), and refer to accuracy, currency, accessibility, relevance, timeliness and consistency. Within the information science field information quality has been investigated using underlying attributes, which include accuracy, completeness, presentation and objectivity (Arazy and Kopak, 2011; Hilligoss and Rieh, 2008; Rieh and Danielson, 2007; Wang and Strong, 1996). In addition to the above mentioned areas, these inquiries support the view that individuals who consume information are likely to hold a preconceived notion of specific quality dimensions as more important than are others. The cause of this has been attributed to domain expertise (Stanford et al. 2002), or differences in information-seeking styles (Rains and Karmikel, 2009).

From an AC point of view and as a factor for information system success (DeLone and McLean, 1992), information quality has become a critical issue (Pipino et al. 2002), in constantly changing business settings. Although certain studies do not define knowledge quality (Nelson et al. 2005), such a distinction is important for the development of this investigation. Individuals within organisations seek knowledge when it seems to be potentially valuable (Davenport and Prusak, 1998). Knowledge then is not only sought but is incorporated into various aspects of the organisation (Majchrzak et al. 2004), as a basis for driving competitive advantage. Knowledge quality has been used in a variety of ways (Soo et al. 2004; Rao and Osei-Bryson, 2007; Durcikova and Gray, 2009). Yoo et al (2011) argue that knowledge quality has been measured as a single dimension, contrary to Nonaka (1994), who views it as a multidimensional construct. It is logical to conclude

that since data and information quality are viewed as multidimensional constructs (Yoo et al. 2011), knowledge quality also bears this complexity (Rao and Osei-Bryson, 2007).

Through the work of Yoo et al (2011) and Wang and Strong (1996) a functional alternative to knowledge quality is used, namely intrinsic, contextual and actionable as concepts to describe and assess the quality of new knowledge in non R&D environments. This investigation leans on the notion that knowledge quality is perceived as (Yoo et al. 2011) “ *the extent to which the awareness and understanding of ideas, logics, relationships, and circumstances are fit for use, relevant and valuable to context, and easy to adapt*” (p.331). Also, it positions the perception of new knowledge and consequent action at the discretion of individuals who work in instances where new knowledge enters an organisation. It sets up the opportunity to trace how knowledge moves in different ways and from different people with varying responsibilities at different levels of the organisation.

Researchers (Wang and Strong, 1996; Yoo et al. 2011) define intrinsic knowledge quality as embodying quality in its own right. This seems to relate to new knowledge that is actually new to everyone and demonstrates attributes from a R&D environment. This indicates that individuals justify the accuracy or reliability of their observations (Erden et al. 2008). These attributes include accuracy, reliability and timeliness of the knowledge. Particularly for this inquiry, these attributes are elemental for knowledge quality, and provide a profound crucial link to the understanding of organisational processes, actions and interactions. As posited in Chapter 2, knowledge is defined as a justified belief and this perception influences an entity’s ability for action (Nonaka, 1994; Alavi and Leidner, 2001). In circumstances where individuals justify the accuracy or reliability of their observations (Erden et al. 2008), they do so with a narrow lens, their own. Moreover, knowledge is described as beliefs, opinions, insights and experiences (Davenport and Prusak, 1998; Nonaka, 1994).

Consequently, Yoo et al (2011) argue, “*Intrinsic knowledge quality is a necessary, but not sufficient condition. Knowledge, which does not reflect context, holds no relevance...*” (p. 336). This dispute may lie in the “black hole” of information moving quickly and iteratively between individuals, so that what appears to be similar knowledge may have diverse meaning in varying environments. To increase the sufficiency of knowledge, context-specific characteristics (Becerra-Fernandez and Sabherwal, 2001; Nonaka and Takeuchi, 1995) such as time, space, goals, roles, or paradigms provide indicators to

gauge quality more appropriately. These attributes position the influence of individuals directly in the processes of how knowledge moves within an organisation. It also raises the question of Foucault's (1980) view of the inseparability of power and knowledge.

Contextual knowledge quality is viewed in relation to the relevance, appropriateness and extent of the value added to a particular process in specific environments. Therefore, R&D related knowledge in turbulent environments may not be as contextually useful in slower environments. This changes R&D as a reliable proxy (Cohen and Levinthal, 1990) of AC and also provides the basis for redirecting an aspect of the AC literature to an alternative setting. This alternate route may provide an adequate understanding of context, coupled with proficient use of knowledge (Poston and Speier, 2005), thereby increasing absorption of NK. According to Nonaka and Takeuchi (1995), knowledge is demonstrated through action. Actionable knowledge quality is related to the ease of application to specific processes, and hence its expandability and adaptability is demonstrated when in use.

The capacity to transform knowledge into action is seen through its level of usefulness and potential effectiveness (Davenport and Prusak, 1998; Droge et al. 2003). Knowledge quality depends on actual use and actionable knowledge provides individuals working in groups a level of flexibility and ease of use which in turn increases the potential for effectiveness (Yoo et al. 2011). These three concepts although distinct work simultaneously within organisations. Determining knowledge quality within organisation is related to individuals and their disposition within a particular context. It is within this context of perceiving and recognizing the value of new knowledge, assimilating transforming and applying it that this debate integrates into the process approach (See Figure 3) advocated by Lane et al (2006, p.856).

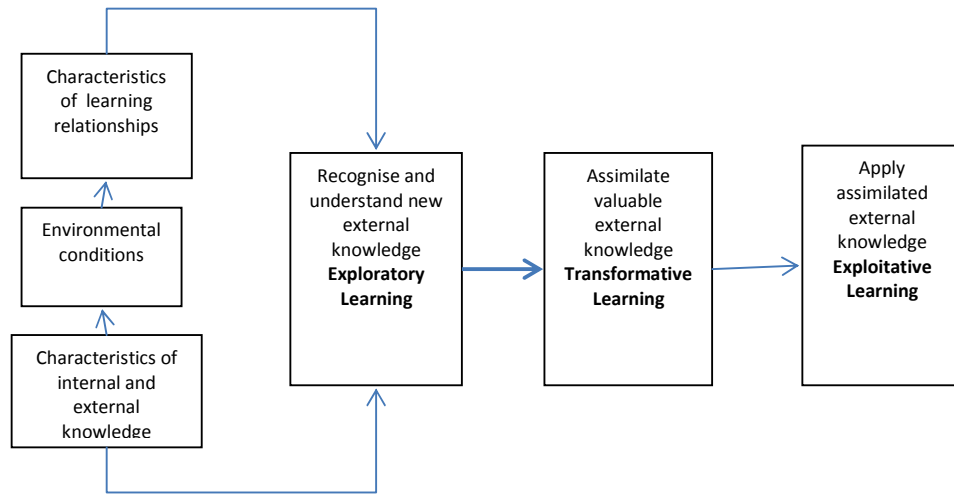


FIGURE 3 - Summary of Process model of Absorptive Capacity

This diagram is a version of the model developed by Lane et al (2006), through a thematic analysis of the extant literature on absorptive capacity. The diagram represents the areas that could be investigated to provide evidence of AC within an organisational context within public or private sector settings.

A foundation for this study lies in individual actions and interactions as well as the relationship to knowledge quality which creates a different angle on AC as it moves within the organisation. The movement of AC to a more socio-cognitive environment has put it under scrutiny of the organisational literature. AC perceived through individual and divisional behaviors are related to decision making can be widely dispersed throughout the organisation. As indicated previously, March's 1991 paper on exploration and exploitation in organisational learning raises critical issues about individual behaviors in the organisation that may play a serious role in the conceptualization of the individual in the AC process.

3.6 LEARNING THROUGH INDIVIDUAL, DIVISIONAL

The individual, their interactions and a learning approach were a firm basis for the seminal paper on AC offered by Cohen and Levinthal (1990). The words used in the definition "*ability, recognise, apply, value, assimilate, innovate*" all imply individual influences and an entwined learning approach. The extant literature associated to learning has demonstrated a vast number of papers contributing to a further understanding of AC from that perspective (Sun and Anderson, 2010). The terms ability, recognise and value notate a type of capability which requires participation from the individual, which according to Cohen and Levinthal (1990) is vital to AC at all levels of the organisations. Cohen and Levinthal (1990) establish this and categorized this "individual" element

under the heading “*cognitive structures*” (p. 129). Although this was an area for further investigation in the seminal paper, individual cognition does not fall under the prevue of this study. They did however highlight the links between individuals that are necessary for AC to occur. They argue, “... *an organisation's absorptive capacity is not resident in any single individual but depends on the links across a mosaic of individual capabilities*” (p. 133). This study springs from a curiosity about the notion of that dependency. It is important to note the emphasis on “*links across a mosaic of individual capabilities*”. The clues to the complexity of AC are more apparent, and this investigation requires boundaries to develop a targeted and meaningful contribution. Consequently, the scope of this investigation extends to interactions between individuals. Notwithstanding the value of the individual in the AC process, the links or rather the working relationships that they engage in are the basis for the group and then organisational levels of AC. The social interactions of individuals is given priority then in the value-chain associated with AC elements and their contributions to the process.

This section explores the antecedents which according to the literature support the movement of AC (De Arauja, 2010; Easterby-Smith et al. 2008a; Van den Bosch et al. 2003; Volberda et al. 2010; Zahra and George, 2002; Lewin et al. 2011). This is followed by the development of the dimensions of AC. This discussion is interspersed, with the influences that are gleaned from the extant literature, which by and large has overlooked influences of behaviours related to power and politics. By giving greater visibility to the individual, this investigation builds on the structural lens which dominates the literature to emphasize and provide greater understanding of AC. The sequencing implied in the processes of AC (Lane et al. 2006; Zahra and George, 2002) is also under consideration.

3.7 ENVIRONMENTAL ORIGINS OF ABSORPTIVE CAPACITY

As mentioned before AC developed in a private sector environment. AC researchers have called for research in the public sector environment (Easterby-Smith et al. 2008a), particularly in response to unpredictable changes in the environment (Mintzberg, 1985). The strategy literature provides this connection through the development of the concept, emergent strategy (Mintzberg, 1985) as a response to rapidly changing environments. This unpredictability has also affected the public sector environment, creating activities that focus on added value and more effective processes (Rashman et al. 2009). Although

AC was developed in a private sector environment, it also provided the foundation for the bridge to a deeper understanding of AC within a public setting.

The foundation for investigating AC in varied environments began through the re-conceptualized approach to AC by Zahra and George (2002). Lane et al (2006) extended on this idea and proposed the process approach which outlined organisational processes relevant to varied settings. Murray et al (2011) argue that the context where information and knowledge operate need to be defined for an awareness of the differences that may exist. Within an organisational context this can be narrowed down to or related to the antecedents and dimensions of AC as outlined in the previous section.

The nature and sustainability of the organisation as well as the capabilities that it produces influence each other, in particular, the *raison d'être* of the organisation for profit or for public good? The purpose of the organisation may affect the nature of antecedents and dimensions. The emphasis of the antecedents may vary. Another element to this discussion is the setting within a developing context where Murray et al (2011) shed light on the contribution that AC may provide. Additionally, in drilling deeper and expressing the AC construct as a set of processes Lane et al (2006), have created a neutrality so that antecedents of AC can be investigated for example from an individual perspective and within a public sector context. Easterby-Smith et al (2008a) lend support to this when they explored AC in a public sector environment, and expressed the need for future research. The process view of AC is outlined in the next section.

3.8 PROCESS APPROACH TO ABSORPTIVE CAPACITY

AC process is responsible for introducing change into an organisation (De Araujo 2010), and facilitates the ability “*to reconfigure its resource base and to adapt to changing market conditions in order to achieve competitive advantage*” (Zahra and George 2002, p. 185). AC enables the organisation to follow a “*multidirectional and fluid path, rather than a patterned trajectory of knowledge acquisition and exploitation, in which the locus of search is continually redefined*” (p. 185) which appears to be consistent with the argument that Zahra and George (2002) laid out. De Araujo (2010) argues that Zahra and George (2002) did not fully integrate their position with the micro foundations of AC, since they also argue that AC is path dependent. It is in this form that De Araujo (2010) raises a contradictory issue in questioning Zahra and George (2002) contribution. This contradiction was also overlooked by Todorova and Durisin (2007), as to how absorptive

capacity may “*secure the introduction of change and strategic renewal into organisations (i.e. be a dynamic capability), while at the same time be subject to the logic of path-dependency*” (p. 8).

Another area of contention, lies with the emphasis on “recognising the value” as an element of AC. According to Cohen and Levinthal (1990) there must be a merging of prior related knowledge, either external or internal to the organisation. In order to merge calls for the different processes required for “recognising the value” element of AC. This aspect highlights the role of the individual in the AC processes. In addition, Todorova and Durisin (2007) emphasize that Zahra and George (2002) overlooked the distinction between assimilation and transformation. They argue that Zahra and George (2002) do not integrate the feedback cyclical aspect of capabilities to develop dynamic characteristics, and therefore again limit the complexity of the construct. These areas of contention are fertile ground for this study.

The individual influences on organisational processes that allow individuals to recognise the value, acquire, transform or assimilate, and exploit knowledge are critical perspectives for a deeper understanding of AC. In addition, despite the origins of AC from a profit laden environment, the antecedents and dimensions are the key to a deeper investigation in the public sector arena. This extant literature on the antecedents and dimensions, as well as the areas of focus for this study, need to be outlined so that an inquiry into the influences of AC can be revealed. The emergence of AC may be realised through an understanding of the levels of analysis that form part of the process.

3.9 LEVELS OF ANALYSIS

Theoretically, the literature with a few exceptions (Argote, 1999; Easterby-Smith et al. 2008a; Jansen et al. 2005; Jones, 2006) has explored antecedents on the collective level (Volberda et al. 2010). Zahra and George (2002) for example used collective constructs such as “external knowledge” and the firm’s “past experience” as key antecedents to AC. Through their collaborations, Cohen and Levinthal (1989, 1990), although define AC as an organisational level construct also allude to other levels of analysis such as the individual and internal units. In particular, they state that the level of the individual and of interaction between individuals are relevant antecedents and indicate potential for future research. In elaborating further, they stated (Cohen and Levinthal, 1990),

“An organisation’s absorptive capacity will depend on the absorptive

capacities of its individual members. To this extent, the development of an organisation's absorptive capacity will build on the prior investment in the development of its constituent, individual absorptive capacities.” (p. 131).

Positioning individual actions and interactions as a cornerstone of this thesis also opens up the debate in the AC literature on the levels of analysis which facilitate the emergence of AC through the organisation. The emergence of AC to the organisational level has been raised in the seminal work on 1990 and this investigation aims to shed some light on this matter. To a large extent, empirical research has used AC as an independent variable, and therefore the focus of AC was perceived at the macro level (Volberda et al. 2010). This hinders a deeper understanding of AC as the antecedents at different levels within the organisation remain hidden.

Another observation by Van den Bosch et al (2003) and Lane et al (2006) is that the AC research is predominantly or almost entirely quantitative. This is another debatable position for support of the inattention to intra-organisational aspects which potentially will provide a further understanding of AC. Lane et al (2006) in their contribution is concerned that AC as a process has been discussed for the better part of fifteen years, yet very few studies have operationalized and tested the assimilation and application of internal and external knowledge (Lane and Lubatkin, 1998; Lane et al. 2006). Although researchers for example Zahra and George (2002) have discussed and proposed the process aspect it was not empirically tested. Jansen et al (2005) tested the theory and found support in their results for the theory. However, in order to build on the previous work in AC the use of exploratory, assimilated and transformative learning and exploitative learning, a view of the flow of new knowledge as it enters and mutates through the organisation, may provide a deeper understanding of AC. This understanding can be deepened particularly when viewed through the perceptual experiences, actions and interactions of employees. To begin the theme of emergence, a suitable attention to the triggering of AC is required.

3.10 TRIGGERING ABSORPTIVE CAPACITY

The triggering of AC has been investigated primarily in fast changing environments where R&D is an overriding measure and dominates the AC literature (Lane et al. 2006; Lewin et al. 2011; Van den Bosch et al. 2003; Volberda et al. 2010). In a different environment where R&D and for profit aims are replaced with a major regard for social

and community development, determining knowledge quality may raise questions of the triggering mechanism. Specifically, do internal triggers consist of a response to a particular need? How is a trigger manifested, and why? How are the various mechanisms within the organisation coordinated and motivated to initiate AC. Also, the influence of the individuals who are an indelible part of the process is a major factor. Do individual interactions related to triggers uphold the sequential nature of AC as implied by some researchers (Zahra and George, 2002; Lane et al. 2006).

Triggers are events that push or persuade an organisation to react to internal or external catalysts within their environments (Walsh and Ungson, 1991; Winter, 2000). The initial approach to the triggers of AC was attributed to an inability to meet organisational aspirations (Cohen and Levinthal, 1990). The literature refers to two general types of triggers which are internal and external to the organisation. Examples of internal triggers are the catalysts that define the introduction of new strategies that transform an organisation (Cohen and Levinthal, 1990; Zahra and George, 2002). Catalysts can be in the form of crises where learning becomes a by-product (Winter, 2000) or it may be a general complacent organisational climate that does not respond appropriately to organisational purposes. External triggers are events that affect the prospect of the industry or community in which the organisations functions (Bower and Christensen, 1995).

The roles and position of individuals or committees (Lewin et al. 2009) are factors in the process of how new knowledge enters, transforms and emerges throughout the organisation. The role of gatekeepers or boundary spanners (Tushman and Scanlan, 1981) and their value is another contextual factor that researchers have referred to as formal or informal roles (Cohen and Levinthal, 1990). In both contexts, these roles which monitor, scan and control the bringing in of new external knowledge may be open to more individuals in the non-profit arena. In R&D contexts where specialist expertise within a hierarchy may have been common, these roles may have been limited to a few individuals. Boundary spanners are useful for integration purposes in cases where the information is difficult for staff to assimilate, hence translation of the information to more digestible forms which may include training (Levinthal and March, 1993). Murray et al (2011) indicate that gatekeepers play a bridging role with internal knowledge translators positioned throughout the organisation. In an environment without technically challenging new knowledge, an issue of control of this new knowledge and its transformation raises tensions as opportunities for negotiation is heightened. Ideally, new

knowledge from outside directed through gatekeepers should be distributed appropriately throughout the organisation (Easterby-Smith et al. 2008a). In addition, Jones (2006) demonstrates that new managers also play the role of gatekeepers, which can affect the organisation in fundamental ways.

Jones (2006) raised the idea of “triggering” to the individual level, through the work of Zahra and George (2002) with the term, “activation triggers”. Cohen and Levinthal (1990)’s scope of AC extended to unit levels and in their findings explained that increased decision making at the unit level triggers members to acquire new external knowledge. This introduces a ripple effect of the trigger concept in AC as there appears to be an assumption of completeness from each stage of the model offered by Zahra and George (2002). The idea of a sequential AC process is also implied in the model posited by Lane et al (2006). The complexity of AC, infers a continuous effect and reaction as the response to the initial trigger occurs. Investigating triggers in relation to individual reactions also brings into play the prior related knowledge of the individual.

3.11 THE INFLUENCE OF PRIOR RELATED KNOWLEDGE

Theoretically, in the AC literature prior related knowledge (PRK) is characterised as basic work related skills, learning experience, latest scientific or technological advancements, shared language and organisational factors which include forms of communication and the treatment of knowledge (Cohen and Levinthal, 1990; Van den Bosch et al. 2003). Prior related knowledge although characterised from the cognitive level through to the organisational level in Cohen and Levinthal’s seminal paper, empirically it is largely limited to the latest scientific or technological advancements (Van Wijk et al. 2011). The exceptions are Jones (2006), Jansen et al (2005) and Easterby-Smith et al (2008a). Cohen and Levinthal (1990) link prior related knowledge directly to the ability to recognise the value of new knowledge. This is supported by Todorova and Durisin (2007), who argue that this is a critical element in the AC process that needs to be highlighted as well as the assimilation activity. This investigation agrees with this nuance of the construct, as it also provides connections to trace how AC emerges through the organisation.

At the unit or group level, absorption abilities are dependent on the varying levels of prior related knowledge which includes past experience (Cohen and Levinthal, 1990). Past experience appears to be a broad term within an organisational context. In addition to the

related terms used to characterise prior related knowledge, past experience may also include the way in which events have occurred (for example in terms of communication and knowledge dissemination) in the unit or throughout the organisation that may have affected the individual or unit. The AC literature does not indicate the nature of past experience from the individual perspective and, as to how and why it would affect AC in a negative way or not.

The assumption of prior related knowledge is related to “stock” (Cohen and Levinthal, 1990; Lennox and King, 2004) which suggests that knowledge bases can be viewed as common measures of AC in terms of R&D (Lane et al. 2006, Lewin et al. 2011; Volberda et al. 2010 and others). The interactions associated with individuals and use of the knowledge base is an assumption born out of the context of AC development. As a consequence, Lichtenthaler (2009) underscores two forms of prior related knowledge in his research, namely market and technological knowledge. This may not be the case in the context of social environments. In public organisations, Murray et al (2011) posit, “... *the importance of in-house prior related knowledge, the importance of informal knowledge transfer, the need for motivation and intensity of effort, and the importance of gatekeepers...*” (p.917), appear to be the focus. Van den Bosch et al (1999) and Todorova and Durisin (2007) cautioned that a negative feedback loop between AC processes and prior related knowledge may be overlooked as the concept of time is not factored into the parameters of many studies on AC.

Lennox and King (2004) do shed light on past events and experiences that influence recognition and use of new knowledge. Lane et al (2001) also bring the time factor into play when their studies addressed time periods and the impact on present use of new knowledge. There is still additional work to be pursued, when time, intention, actions and interactions are integrated in ways in which individuals decide to respond to new knowledge within organisations. The relationship between the individual actions and interactions and organisational memory is an additional factor in the environment that constitutes prior related knowledge. Although the collective approach appears to be used, at the micro level where the individual is central, more attention may deepen understanding of AC. This also means that there are multiple internal gatekeepers who form part of the public environmental landscape. Also, prior related knowledge and the process by which it is retrieved require attention (Volberda et al. 2010). The dimensions of AC process will be explored in the following section.

3.12 EXPLORATORY LEARNING

Exploratory learning is a term used by Lane et al (2006) to describe processes associated with exploring for new knowledge, recognising the value of it and so understanding it for assimilation and or transformation. Lichtenthaler (2009) carried out empirical work and suggests that they are distinctive processes. Knowledge sharing is an indicator of AC (Dyer and Singh, 1998; Koza and Lewin, 1998; Lane and Lubatkin, 1998; Mowery et al. 1996; Zahra and George, 2002), and by positioning the individual within this context emphasizes this aspect. The process approach focuses on the knowledge sharing, actions and interactions for the flow, assimilation and transformation of new knowledge. From the individual perspective, the other aspect of knowledge seeking requires some attention to demonstrate and motivate one to act.

3.12.1 INDIVIDUAL SEEKING, RECOGNISING THE VALUE OF KNOWLEDGE

This investigation borrows from the information field to shed more light on the individual faced with making sense from new knowledge. Dervin contributes to this in delineating other actions that form part of the knowledge sharing process, namely information/knowledge seeking. Dervin (1998) uses a metaphor to think about the complexity of making sense out of knowledge; this metaphor mimics the principles of CR, by viewing individuals as,

“traveling through time-space, coming out of situations with history and partial instruction, arriving at new situations, facing gaps, building bridges across those gaps, evaluating outcomes and moving on.” (p.39)

Dervin has in effect described a SM methodology which as is infused in Chapter 4, the methodology directing this investigation. From a management perspective, March (1991) made this observation,

In contrast to a theory of information that assumes that information is gathered to resolve a choice among alternatives, decision makers scan their environments for surprises and solutions. They monitor what is going on. They characteristically do not “solve” problems; they apply rules and copy solutions from others. (p.112)

As mentioned previously in the section on Triggers, the initiator is in response to the environment. For the individual the trigger to seek new knowledge seems related to structure of the organisation. The nexus of knowledge sharing begins with the ability to

share. This raises question of how do individuals determine what to share and how an individual searches for or seeks this knowledge. With the introduction of new knowledge within an environment, the individual has to make sense of it within his/her purview. Within an organisational context sense-making relates to formal roles and responsibilities and how that influences their actions and interactions with others in the organisation. Irrespective of place or position within an organisation, new knowledge creates a gap of the unknown as well as potential bridges to become more knowledgeable (Dervin, 1998).

There were two areas mentioned in this theoretical contribution that need emphasis, and was also the thread from Cohen and Levinthal's work of the influence of the individual. This emphasis places the individual at the forefront and in so doing the behaviors and issues associated with power and politics are discussed. The importance of roles and different elements of an organisational AC and the relationship among these components "*influence a firm's strategic choices*" (Zahra and George, 2002 p. 186), are also highlighted. Through this approach one can view and trace how AC emerges from the organisation. The literature infers a process that rises through the organisation, in a sequential and circular manner. This may not be the case hence the reason to trace AC. Therefore, this investigation moves back to Cohen and Levinthal (1990) and Jansen et al (2005) focus on units, and questions what drives (or not) AC within public organisations.

Lane et al (2006, p.852) argue that the literature suggests that ignoring the process aspect of AC also ignores two thirds of Cohen and Levinthal's 1990 definition of AC. They cite AC as a process capability and the critical role of the individual within this learning capability. Theoretically, Cohen and Levinthal (1990), propose that the individual is the basis for AC. However, R&D has been the "go to" proxy for AC since the coining of the construct (Van den Bosch et al. 2003). Furthermore, Lane et al (2006) note that what creates competitive advantage out of knowledge is: "*the unique and valuable ways in which it is combined and applied*"(p.854). Fundamental to this capability, is the individual knowledge and cognitive characteristics of employees within the organisation who seek knowledge internally and externally. Therefore, this line of argument suggests that the creativity from individuals provides the impetus to apply knowledge in a unique way (Lane et al. 2006). In retrospect, ignoring the individual has also meant that multilevel approach has not been given attention. Investigating AC from individual perspectives may provide insights in varying levels of learning and in various divisions of the organisation. This gap suggests stagnation in the actual development of the construct

(Van den Bosch et al. 2003) in terms of depth and breadth within the organisation. This raises the question of whether or not different levels of creativity are found at different levels in the organisation and stages of AC.

This argument for the individual perspective is supported by the lack of research at the level of individual with the exception of work done by a few writers (Gupta and Govindajan, 2000; Jones, 2006; Szulanski, 1996). This dearth has skewed the developmental path of the construct, where research has been based primarily on knowledge content. Additionally, Lane et al (2006), Easterby-Smith et al (2008a), Van den Bosch et al (2003) agree in principle that research to date has focused on the acquisition element of the AC process. Incidentally there is a corresponding omission in the intra-organisational context, specifically of internal mechanisms and prior related knowledge (Van den Bosch et al. 2003). Prior related knowledge in the context of process is also very open to investigation.

Zahra and George (2002) suggest that social interaction mechanisms begin during the acquisition stage of AC. On the contrary and consistent with the general tenor of investigation, ‘*recognise the value*’ is important as indicated by major AC researchers (Cohen and Levinthal, 1990; Easterby-Smith et al. 2008a; Lane et al. 2006; Jones, 2006; Todorova and Durisin, 2007). This investigation argues that in different environments where the purpose of the organisation is for profit or social good, the values vary. The behavioral, power and political influences may be more apparent because profit is not the ultimate driver.

According to the AC literature the actions associated with Cohen and Levinthal (1990) “ability to recognise the value” raises a number of possible activities. Gatekeepers and boundary spanners from external perspective of AC (Cohen and Levinthal, 1990) factor in the process offered by researchers in AC (Easterby-Smith et al. 2008a; Jones, 2006). This also indicates the structure of communication within the organisation as observed by Van den Bosch et al (1999). Furthermore, Lewin et al (2009) add to this aspect of the debate, and highlight the central role of gatekeepers in the usual turbulent environment of AC development, citing the significant role played in interpreting new knowledge to ensure contextual relevance. Assumptions of structural implications are evident, in environments where knowledge is confined to a few individuals. In environments where many have access to knowledge, the challenge may be concerned with what is brought to bear on this new knowledge. Expertise in a specific area would give one individual an

edge over another as well as the position and standing in the organisation. A deeper understanding of AC requires how various types of gatekeepers (Lim, 2009) at different levels of the organisation influence knowledge flows. The main question here is the roles of individuals that are played out in the organisation in relation to the responsibilities that they carry out and how it affects the various processes of AC.

3.12.2 THE NATURE OF NEW KNOWLEDGE, SHARING AND INITIATING ASSIMILATION

Huston and Sakkab (2006) posit that external new knowledge requires further development to be exploited by any organisation. The extent of that development may be the difference between assimilating new knowledge and transformative learning. The literature views assimilation as the capacity to imitate (Lane et al. 2002). Huber (1991) uses the terms “grafting” to refer to the process of adding to an organisation's knowledge base by internalizing knowledge not previously known. Kim (1998) argued that a learning capability is to assimilate knowledge for imitation, and problem-solving skills are the capacity to create new knowledge for innovation. Lennox and King (2004) suggest that the ability of managers to provide information and that of individuals in the organisation to assimilate is dependent on experience with related processes. The exact nature of this process requires further investigation with a cross-disciplinary diversion into the information field. Extending briefly into assimilation learning theory will expand on this discussion and this is addressed in the following section.

The ubiquitous nature of knowledge creates a challenge to specify the nature of the knowledge investigated. Previously the issue of knowledge quality was given attention to provide a frame of reference for viewing knowledge from an individual perspective. As mentioned before, R&D was a measuring stick for evidence of AC, effectively relating to content as a tangible aspect of knowledge to define AC. Lane et al (2006) observe that two major types of knowledge used in the literature are mainly theoretical. The studies address external knowledge which affects absorption and assimilation in an organisation. Also, different features of knowledge that affect AC were identified. These uses demonstrate the complexity of AC processes as a mediating and independent variable (Lane et al. 2006).

As mentioned, in a largely R&D environment, a major feature of AC is “knowledge content”, or “know-what” such as common skills (Bierly and Chakrabarti, 1996; Lane and Lubatkin, 1998), strategy (Barkema and Vermeulen, 1998), knowledge bases (Ahuja and Katila, 2001), similar culture (Bhagat et al. 2002; Simonin, 1999). Another feature is

“tacitness”, which is concerned with “know-how”, and is embedded within the actions and interactions of individuals and the processes that they engage in within the organisation. This type of knowledge is considered to complicate imitation (Kogut and Zander, 1992; Nonaka, 1994; Reed and DeFillippi, 1990; Simonin, 1999). It is therefore difficult to transfer and absorb (Saviotti, 1998; Simonin, 1999; Szulanski, 1996). If imitation is the goal of absorption, then assimilation and complexity is a challenge. However, if transformation which connotes innovation and creativity is the objective of an organisation, then is complexity of AC a foundation for absorption and learning?

Complexity as a feature of knowledge is described as a number of mutually dependent technologies, processes, individuals, and resources associated with specific knowledge or advantage (Simonin, 1999). These features indicate the difficulty in knowledge absorption. The focus of these findings is from an organisational perspective with the exception of Szulanski (1996). The individual perspective provides opportunity for viewing the different types of knowledge as they mutate and emerge through the organisation. The influence on the mutations raises also the power and political factors in this scenario. This refutes the assumption that acquisition alone increases organisation effectiveness. Brökel and Binder (2007) added to this discussion through another type of knowledge transfer: intended (individual actively seeks knowledge) and unintended (individual comes across information and knowledge by accident).

There is consensus among AC researchers that studies in non R&D environments are required to understand the AC factor (Easterby-Smith et al. 2008a; Lane et al. 2006). Furthermore, public sector or non-profit environments must become part of AC research. Theoretically, Cohen and Levinthal (1990) placed a significant amount of emphasis on the individual perspective as a fundamental aspect of AC, however empirically the literature so far appears to be virtually devoid of these kinds of studies with a few exceptions (Easterby-Smith et al. 2008a; Jones, 2006). The research so far has determined types of knowledge that form AC but little is known of the processes that develop, manage and exploit those types of knowledge. The role of individuals and processes associated with AC in developing and deploying and maintaining AC within units and at the organisational level needs examination. This research is framed in areas such as the structure of the organisation, and the individual as well as the knowledge processes that affect AC. In view of the processes and routines that are required to determine the influences of AC, internal drivers or mechanisms that make AC happen will be investigated. Exploring individual action and interactions as the basis for an

organisation's AC will provide insights into what and how knowledge is recognized, transformed combined and applied (Lane et al. 2006). The assimilation or transformative learning is discussed in the following section.

3.13 ASSIMILATED AND TRANSFORMATIVE LEARNING

"Imagine how things could be otherwise" (Greene, 1995) is central to the initiation of a transformation process. From the AC point of view transformative learning is a pivotal process connecting exploratory and exploitative learning (De Araujo, 2010; Lane et al. 2006; Lichtenthaler, 2009; Todorova and Durisin, 2007). Prior to the use of transformative learning, the seminal paper (Cohen and Levinthal, 1990), referred to the term assimilation to describe the dual role of R&D, as it functioned for the creation of new knowledge and the ability of firms to absorb and utilize knowledge (De Araujo, 2010). Zahra and George (2002) added significantly to this idea, and extended the content related term and the associated use of assimilation in the development of the process view. It is through this process approach to AC that a link to transformative learning was forged. Theoretically, the use of the term "transformative learning" was contributed by Lane et al (2006) and empirically tested by Lichtenthaler (2009). Lichtenthaler (2009) appears to have maintained similar indicators in the AC literature of assimilated learning. To elaborate on these issues, this discussion begins with the treatment of transformative learning in the AC literature.

In the AC literature transformative learning is the lynchpin that binds exploratory and exploitative learning (Lane et al. 2006), and more importantly it is limited by reference to the retention of knowledge over time. AC researchers agree that without transformative learning, exploratory and exploitative learning are inefficient and cannot maintain high performance levels in circumstances where knowledge is collected and stored over time (De Araujo, 2010; Lichtenthaler, 2009). The question of knowledge quality is a factor as retaining knowledge requires constant management to ensure that assimilated knowledge is current and relevant, so that associated processes and skills are not lost over time (Lane et al. 2006; March, 1991; Marsh and Stock, 2006; Uotila et al. 2010). To facilitate exploitation, the maintained knowledge has to be remembered, and internalized again through practice (Argote et al. 2003; Lichtenthaler, 2009; Marsh and Stock, 2006). However, who remembers that this "maintained knowledge" exists and when and why to reactivate it remains unanswered. Furthermore, how is this "knowledge" maintained?

Who determines the focus of this maintained knowledge, when knowledge is fluid and loses currency and relevance (Snowden, 2002)? The reasons for the reactivation and ownership of knowledge are disputed since it does not remain the same over time. This scenario shows a tendency towards Foucault's (1980) fluid view of power and knowledge.

According to Garud and Nayyar (1994), transformative learning of absorptive capacity comprises two essential stages: maintaining assimilated knowledge and reactivating this knowledge (Lane et al. 2006; Marsh and Stock, 2006). The literature informs that in retaining knowledge, organisations require prior technological and market knowledge (Lichtenthaler, 2009; Marsh and Stock, 2006). This may mean that individuals are required to keep abreast with relevant technologies and current changes in the market according to their industry. Selecting one specific technology in slower environments may require different criteria, and ignite a negotiating environment, particularly in public organisations. Therefore, as Kogut and Zander (1992) argue that learning is locally predisposed, these two elements of prior related knowledge provide the basis for the argument for path dependencies in transformative learning as used by Lichtenthaler (2009). The basis for these assertions rests on the assumption that transformative and assimilated learning which are used interchangeably are one and the same. The merit of these assumptions will be addressed later in this section with a cursory examination of the origins of transformative learning.

The idea of more (technology) meaning better (Garud and Navyer, 1994), is not necessarily the ultimate goal in slower environments as budget constraints favour more relevant technological and market knowledge. This is an opening for determining the quality of knowledge that is required for an organisation to meet strategic goals. However, Lane et al (2006) and other researchers (Garud and Nayyar, 1994; Marsh and Stock, 2006) call for transformative learning in faster and more turbulent environments. If highly dynamic environments pose retention challenges (Marsh and Stock, 2006), the argument for transformative learning may also appear to be another contradiction. Lichtenthaler (2009) comments that the value of transformative learning could very well decrease in turbulent environments as new developments may affect the currency and relevancy of the maintained knowledge.

Todorova and Durisin (2007) argue that transformation represents an alternative process to assimilation. They support this on the notion that Cohen and Levinthal (1990) were

mindful of the change in the level of analysis when AC shifts from individual to organisational absorptive capacity. Furthermore, Zahra and George (2002) in their re-conceptualization did not consider the issue when they introduced the element of transformation (Todorova and Durisin, 2007). This interpretation from Todorova and Durisin (2007) raises questions of the position of the individual and distinctiveness of assimilation and transformative learning. This idea requires further investigation into the origins of both concepts of learning to differentiate between the two ideas. The learning literature indicates complications between the organisational and individual level of learning (Cohen and Levinthal, 1990; Walsh and Ungson, 1991), hence the need as expressed in the seminal paper, for future research in cognition. It is prudent to bear in mind the comment by Fiol and Lyles (1985) who caution, that there are different levels of learning, as change and adaption do not necessarily imply learning.

From an individual perspective and to address the continuity or diversion of options with regard to the processes of transformation and assimilation in organisations, a succinct attention to the origins of transformative learning is necessary. Assimilation theory views new knowledge as hierarchically organized and meaningful to a learner and will be remembered when it is associated to existing knowledge (Ausubel, 1978). Piaget's (1970) view of assimilation is the process by which an individual takes material into their mind from the environment, which may mean changing the evidence of their senses to make it fit. This implies the tendency to modify new information or knowledge according to our beliefs. Literature on assimilation in organisations tends to view assimilation in relation to experiences of new employees and workplace socialization issues (Miller, 1996; Waldeck et al. 2004). This suggests an assumption of "towing the line", as part of the learning process.

The learning literature on transformative learning provides a wider but pertinent perspective, Mezirow (2009) elucidates on his 1978 work in this area,

... the recognition of a critical dimension of learning in adulthood that enables us to recognise, reassess and modify the structures of assumptions and expectations that frame our tacit points of view and influence our thinking beliefs, attitudes, and actions."(p. 20)

The concept of transformative learning was developed from a study rooted in a grounded theory methodology, which identified a number of phases of learning, which included disorienting dilemma; self-examination, a critical assessment of assumptions; recognition of a connection between one's discontent and the process of transformation; exploration

of options for new roles, relationships and action, planning a course of action; acquiring knowledge and skills to implement one's plan; provisional trying of new roles; building competence and self-confidence in new roles and relationships; and a reintegration into one's life on the basis of conditions dictated by one's new perspective (Mezirow 2009, p. 19).

Transformative learning appears to address individual points of view, and encompasses Habermas's(1991) critical distinction between instrumental and communicative learning (Mezirow 2009). Instrumental learning is associated with managing settings, individuals and increase in effectiveness. Communicative learning pays attention to and is considerate of what others mean when they communicate. Conversing with individuals provides opportunities to corroborate or substantiate disputed viewpoints. This action facilitates dialogue with other individuals who may be more informed, objective and rational (Mezirow, 2009; Taylor, 2009). These individuals are usually friends and colleagues (Brookfield, 2009). Transformative learning "*transforms problematic frames of reference to make one more inclusive discriminating, reflective, open and emotionally able to change*" (Mezirow 2009, p. 22).

Although reflection is a required element of AC as a learning process, and as such, forms part of assimilated learning (Lennox and King, 2004; March and Levinthal, 1993) and transformative learning (Lane et al. 2006; Lewin et al. 2011; Volberda et al. 2010). Reflection processes (Zollo and Winter, 2002) enable organisations to update their capabilities at specified periods or as part of an essential process (Lewin et al. 2009). Szulanski (1996) provides an example where problems in an implementation process were major points of evaluation which were then turned into specific tasks in response to problems. Although AC requires formal reflection, this activity also occurs at the individual level which may influence the process at the organisational level. The manner in which this occurs is not outlined in detail in the AC literature. The actions and interactions associated with reflection may provide a useful indicator to point to the significance of activities that influence employees participating in AC processes.

Brookfield (2005) states that critical reflection is involved at every stage of transformative learning, and therefore, this will also extend to individuals when recognising new information/knowledge. Critical reflection (Brookfield 2009) is a, "*...deliberate attempt to uncover, and then investigate the paradigmatic, prescriptive and causal assumptions...informs how we practice*" (p.125). Critical reflection emphasizes

and disputes the power relationships that permit, or support one particular set of practices as officially valuable. Tensions with management and the transformative learning concept are evident, for the reason that critical reflection may focus precisely on revealing and challenging the power and political dynamic that shape learning in practice. The notion of power as conceived by Foucault (1980) as a flow allows for a deeper understanding of AC. The assimilation tendency appears to support the Brookfield (2009) argument that, *“...perceptual frameworks that determine how we view our experiences and is observed through self-confirming cycles, which reconfirms the truth of our assumptions”* (p.133). The inclination is to view the two concepts on a continuum, riddled with temporal, structural factors, rather than on the two distinct structural views offered by Todorova and Durisin (2007).

Transformative Learning or assimilated learning provides a potentially equalizing mechanism between the challenges of intra organisational learning. According to March and Levinthal (1993), different forms of learning occur simultaneously and prove to be confusing. To manage these experiences, organisations tend to streamline interactions by hindering learning in one part of the organisation to facilitate more effective learning in another (Lounamaa and March, 1987). In circumstances when new knowledge enters the organisation, this appears to create a difficulty for the flow and movement of knowledge. With a CR approach and the principles of transformative learning and its original assumptions may create a clash with the foundation of structures that have permeated the flow of knowledge. Through the conflict a new approach to learning in organisations may emerge.

3.14 EXPLOITATIVE LEARNING

Lane et al (2006) offer a process-based definition of AC, which refers to applying acquired and assimilated or transformed knowledge for commercial outputs (Cohen and Levinthal, 1990). Exploitative learning involves matching knowledge in response to the status of the external environment (Lennox and King, 2004), after deciding on applications on the assimilated knowledge then the organisation applies it. Exploitative learning facilitates the planned and controlled application of transformed internal knowledge (Lane et al. 2006; Lichtenthaler, 2009). This exploitation adds to the existing knowledge base and competence set of an organisation without changing the nature of activities (March, 1991). There are two steps to this process; they include converting the new knowledge and applying this knowledge (Lane et al. 2006; Todorova and Durisin, 2007). As indicated previously, the overlap between processes is suggested here as well,

and may extend throughout the AC process. To exploit knowledge effectively, an organisation requires both technological and prior knowledge (Jansen et al. 2005). Through assimilating new knowledge an organisation deepens its understanding of technological knowledge (Zahra and George, 2002). These processes may be influenced by different actors throughout the AC process.

The effect at the organisational level may reveal the gradual and incremental influence as well as the negotiating issues that are necessary to ensure the AC is absorbed in an effective but efficient time frame. The process in applying this assimilation requires close attention, to see the strappings of exploitative learning. Although the internal processes are significant the implementation of a technological change may provide a useful measure in determining how and why knowledge processes may be applied. This can be seen at an additional level through the use of another form of learning that frames decisions associated with exploratory, assimilated, transformative and exploitative learning. This study uses prescriptive and emergent learning tendencies to explain some deeper issues and may also reveal the cumulative processional nature of AC. The influence of AC processes on prescriptive and emergent learning within the organisation may also highlight more clearly the interactions and responses for individuals at various levels of the organisation. This may create a greater level of tangibility to the AC process.

3.14. 1 PRESCRIPTIVE AND EMERGENT LEARNING

Traditionally, prescriptive or formal learning has been the status quo for learning in organisations (Garavan, 1997), and is referred to as planned learning. Formal learning normally directs the organisation in terms of how it should learn and usually provides classroom based or highly structured learning environments (Marsick and Watkins, 2001; Watkins and Marsick, 1992). It is also inclined to more hierarchical approaches (Argris and Schon, 1988) and can be limited (Hoyle, 1995), which is in contrast to emergent or informal learning (Cross, 2007). Prescriptive learning where management is in charge of training is the learning form of choice (Williams, 2001). Framed by the learning processes of AC, prescriptive learning raises a number of tensions and questions for self-directed learning (Dealtry, 2004; Harkema, 2005; Marsick, 2009) particularly at a time when technology plays a central role in organisations and creates opportunities for informal learning. In addition, the appropriate levels and timing for prescriptive learning such as training during events of technological change may draw out processes associated

with self-directed learning in organisations. With the pervasive nature of technology and access to knowledge, is there a place for prescriptive learning? When shaped by other forms of learning that are carried out at other levels within the organisation, the role and effectiveness of prescriptive learning may be compromised.

Emergent learning is a form of learning that happens from doing work on a daily basis away from a classroom setting and is tied to informal or self-directed learning (Dealtry, 2004). Emergent Learning is pragmatic and focused on learning through experience to effectively overcome organisational development challenges (Olsson et al. 2008). This type of learning is affected by the history of the organisation (Walsh and Ungson, 1991; Williams, 2001) and reflects its past in terms of influential groups, individuals, structure and technology of the organisation (Schein, 1992). In cases where the historical influence of the organisation is detrimental to the current changes being implemented (Williams, 2001), planned or formal learning may be utilised to offset this kind of emergent learning (Marsick, 2009). The most effective learning method within organisations tends to be an appropriate combination of informal and formal learning (Harkema, 2005; Marsick, 2009) at the right time. These two forms of learning may function along a continuum (Cross, 2007).

“Knowledge is itself moving from individual to the net” (Cross 2007, p. 16), and content is not the dominant factor, rather as knowledge quality indicates, knowing who, what, where, when, how, is by far the most sought out skill in the 21st century (Cross, 2007). In general there is a role for both formal and informal learning, blending the two forms may be a challenge for organisations (Cross, 2007). Therefore, encouraging learning among employees and finding the most appropriate path, deciding on how to use networks are all indicative of informal and formal strategies. Dick Sethi states (in Cross 2007), *“Informal learning is effective because it is personal, just in time, customised and the learner is motivated and open to receiving it. It also has greater credibility and relevance...”* (p.17). The individual may be inspired because the power and control lies with the learner. Arie de Geus (1988) advised, *“ the ability to learn faster than your competitors may be the only sustainable competitive advantage”*(p.4). Broad (1992) cautions that investments in organisational training and development are unutilized as the knowledge and skills gained in training are not fully applied by employees. In addition, learning is greatly affected by organisational context and environmental factors. The factors include, clear expectations, insufficient and untimely feedback, lack of access to

required information, inadequate tools, resources, procedures, inappropriate and counterproductive incentives, task interferences and administrative obstacles (Stolovitch and Keeps 2002, p.1).

3.15 KNOWLEDGE AND LEARNING THROUGH POWER AND POLITICS

The issues of power and politics in AC literature have been mentioned as future research in Easterby-Smith et al (2008a) and Jones (2006). Although managers do not readily admit to the natural place of politics (Buchanan, 2008); this perspective from individual interaction and action, as well as the importance of knowledge sharing (Kane et al. 2005), leads logically into the discussion of power and politics. Generally, power refers to one individual's ability to influence another and is also embedded structurally in the employment relationship in organisations (Hislop, 2009). Within an organisation this is related to authority and legitimacy. With the existence of power relations in organisations, then politics is an essential part of organisational life (Davenport and Prusak, 1997). Marshall and Brady (2001) state that the organisation literature has recognised that knowledge is linked to power and that seeking, requesting, knowledge sharing and transfer is usually political. Politics functions as a means of identifying individual or divisional interests with an aim to reconciling, which according to Aristotle emanates from diverging interests within the organisation.

Easterby-Smith et al (2008a) and Marshall and Brady (2001) utilized Foucault's episodic and systemic conception of power to explain some of the examples observed in their research. Episodic power describes isolated political acts initiated by individuals. This refers to daily intermittent acts of power which can be seen as positive or negative (Clegg, 1987). Systemic power appears to be undetected throughout social systems that comprise organisations and is inherent for example in the hierarchical make up of the organisation. This investigation is influenced by Foucault (1980) view of power as it is attempting to trace the movement and flow of knowledge through the organisation. This conception focuses on social relationships and associated acts. More importantly:

It is in discourse that power and knowledge come to articulate themselves. And for this very reason, we must conceive discourse as a series of discontinuous segments, whose tactical function is neither uniform nor stable. We must allow for a complex and unstable play in which discourse is perhaps at once the instrument and effect of power, but also an obstacle, a stumbling-block, a point of resistance. (Foucault 1978, p.100)

This is consistent with the practice based epistemological conceptualization that knowledge is embedded in particular work practices and contexts. This review extends tentatively into the organisational learning literature to shed light on this matter. First, a brief introduction into the use of power and politics as it relates to knowledge and learning is necessary.

Foucault (1980) states that dialogue is created and perpetuated by those who have the power and means of communication and those who are in control decide who we are by deciding what we discuss. Hence in order to change, one requires the custody of the means of communication and representation. Schultze and Stabell (2004) use a Foucauldian perspective and state (Foucault, 1991):

“...power exercised as strategy.....this power is exercised rather than possessed;...the ... effect of its strategic positions ... is manifested and sometimes extended by the position of those who are dominant” (p.174).

Foucauldian approaches to power advocate a consideration of power as complex, relational in order to understand how it functions in practice. Foucault's view focuses on power from below and through the individual. This means that other social entities that affect the individual to determine reasons to use or not use power are minimized. Critiques of Foucault's conception of power, for example from Habermas (1990) view of power are concerned with repression and threats to communication and democracy. He also sees politics as an intervention to these threats, and that it exists external to the context of power. In particular Habermas (1990) finds fault with Foucault's fluid view of power. Although this view is one of the elements that provides grounding for this investigation, it also extends beyond these ideas to include the social influences as well, hence the acknowledgement of the communication and structural make up of the organisation. This structure is an integral aspect of the design of this investigation which is articulated in Chapter 4.

This means consideration of power embedded in individual action and interaction and how it influences relationships, roles and responsibilities within a framework is encompassed in this study. The interpretations of the history of the organisation are political, mirroring efforts to allocate and avoid responsibility for success or lessons learnt and to establish constructive historical stories (Sagan, 1995). Although organisations record the lessons of histories through the adjustments of rules and the explanations through stories, none is a holistic device representing the past (Levinthal and

March, 1993). Challenges with memory, conflict, turnover and decentralization create an intricate venture to attempt to extract lessons from experience and to preserve them (March, 1991). It is not surprising that researchers in organisational learning seem to agree that influence of power and politics have been overlooked (Coopey and Burgoyne, 2000; Easterby-Smith et al. 2008a; Field, 2011; Knights and McCabe, 1998; Nissley and Casey, 2002; Rashman, 2009; Vince, 2001). Easterby-Smith (1997) argues that a major criticism of the organisational learning framework offered by Huber (1991) is that it does not factor in political behaviours in organisations which can misrepresent and contain information and knowledge.

This may extend to the treatment of power and politics in the AC process, which may be considered, (borrowing from Easterby-Smith, 1997), politically naïve. Jashapara (2011) provides a useful description of power and politics in practice,

“Organisations exist in dynamic contexts where power relations may vary considerably, resulting in internal environments fluctuating between polarities of cooperative, consensual coalitions at one end and conflictive in-fighting from deep political manoeuvrings at the other..” (p. 148).

Democratic rights provide the societal background (Coopey and Burgoyne, 2000) to this investigation, and as organisations do not exist in a vacuum one must assume that those rights are supported with values and beliefs and affect the organisational political processes. Prior related knowledge is an antecedent of AC (Volberda et al. 2010; Van den Bosch et al. 2003), and in political terms organisational history and memory is associated with knowledge bases (Jashapara, 2007). However, individual actions related to content are not necessarily defined only by this content. Individuals at all levels bring to the organisational knowledge base many other experiences and skills that can be interpreted in a variety of ways, and in response to events as they occur. From a structural power and political point of view, new knowledge and the ability to remember or forget is also a factor that requires further investigation. The politics of remembering are often aligned with positive experiences while the politics of forgetting engages with the departure from painful and negative experiences from an organisation past (Nissley and Casey, 2002). Is this the same for individuals at different levels of the organisation? This raises questions about the political tenor of the organisation and how and why it may change between groups or from event to event or from day to day depending on the accessibility to information or knowledge.

Research in power and politics and knowledge within organisations indicates a lack of agreement as to how these concepts are perceived (Contu and Willmott, 2003; Hislop, 2009; Willem and Scarbrough, 2006). To a large extent, in the knowledge management literature a consensus perspective has been applied to the investigation of power and politics, which has structural roots of shared values within the organisation (Fox, 1974). A consensus approach functions with the idealistic assumption that harmony exists within the organisation (Schultze and Stabell, 2004). An alternative approach referred to as ‘dissensus’, assumes that power distribution is unequal, conflict is an inherent feature between groups and individuals (Schultze and Stabell, 2004) and that is a healthy organisational factor (Jashapara, 2011).

Marshall and Brady (2001) state, “...*frequent organisational reality of divergent interests, political struggles and power relations*” (p. 103), are a reality and therefore, this investigation assumes a dissensus assumption of power and politics in organisations. This is consistent with a CR approach as the reality of interaction within organisations is a constant battle for timely information. In later writings Foucault (1982) concedes and opens up to future deliberations beyond his previous work,

“A power relationship can only be articulated on the basis of two elements which are indispensable if it is really to be a power relationship: that ‘the other’ (the one over whom power is exercised) be thoroughly recognized and maintained to the very end as a person who acts; and that, faced with a relationship of power, a whole field of responses, reactions, results, and possible inventions may open up” (p.789).

These fundamental issues suggest an effect on knowledge sharing, and can influence the disposition of groups and individuals which in turn will affect learning in organisations as involvement in knowledge processes are the foundation for learning (Hislop, 2009). New knowledge entering an organisation is beset with an avalanche of influences. The power and political play long established in the organisation may also be seen through two ways. Within a complex understanding of organisational environments, the individual and their interactions, adhere to rules and control mechanisms. Tensions may be created through many levels within the organisation, top down, bottom up and laterally. CR may offer a liberalising approach to understanding how new knowledge is treated in organisations, despite the value laden nature of knowledge processes (Alvesson and Kärreman, 2001).

SUMMARY

This chapter reviewed the literature on a variety of connected elements that influence the AC process. An alternative perspective to AC examined a few areas that have been overlooked and outlined in the following ways. First, antecedents and the triggering of AC in the exploratory stage and the nature of new knowledge including prior related knowledge as process with a focus on individual actions and interaction related to knowledge sharing and flow. Second, through assimilated and transformative learning the focus on the individual interaction and action at different levels of the organisation has highlighted the relationships within the organisational structure and context. As a consequence AC is also viewed in terms of levels of analysis and the power and political element that influenced the process. Third, exploitative Learning is viewed through two other forms of learning, Prescriptive and Emergent, to demonstrate the forms of learning that operate simultaneously within the organisation. These issues are framed in a social context, rather than in the origins of the AC construct of turbulent, research and development, and profit context. In addition, the geographical context of this study raises issues in a Caribbean context which are connected and addressed in the introductory Chapter of this investigation.

In the following methodological chapter, the proposed conceptualization of this investigation recognises an organisation as a series of processes that evolves through interaction at various levels, individual and divisional. As part of this recognition, this study will attempt to identify the nature of processes that promote AC, the way in which individual and divisional values, goals and attitudes influence the AC. This multilevel perspective facilitates the view of AC interpreted and reinterpreted between individuals in various divisions and levels of the organisation which are also significant to this proposed investigation.

CHAPTER 4: METHODOLOGICAL APPROACH

4.1 INTRODUCTION

This chapter outlines the theoretical and practical elements of this study. It delves further into the questions raised by this investigation and discusses methods that are most suitable, particularly for the aims and nature of this study. While Chapter 2 has established the epistemological stance of this investigation, it is prudent to note that one of the key debates in philosophy is the confusion between issues of ontology⁸ and epistemology⁹ (Blunden, 2009; Spencer, 2000). In scientific research, epistemology is favored as it tends to provide evidence of knowing and furthermore a consistent structure of ontological, epistemological, axiological, and methodological assumptions which guide research (Creswell, 1998; Guba and Lincoln, 1994). Also, the influence on the case study as a research strategy is outlined, as well as how these angles affect the manner in which the research questions were developed. Data collection methods are discussed centering on the rationale for selecting specific techniques. In addition, the implementation of data collection process is discussed and the analytical strategies are posited. The ethical issues are given due consideration and the chapter concludes with a brief description of the intended analysis.

4.2 RATIONALE FOR QUALITATIVE METHODOLOGY

AC theory has demonstrated frequent use of research methodology in the field involving quantitative survey, closed-ended questions (Easterby-Smith et al. 2008c; Lane et al. 2006; Van den Bosch et al. 2003; Woodside and Wilson, 2003). This focus on quantitative approaches has created a gap in the AC field. The rationale for selecting a qualitative approach in this investigation is addressed, with an aim to describe and explain (Cormack, 2000) elements of AC. The AC literature has indicated that for example prior related knowledge is important for AC effectiveness (Cohen and Levinthal, 1990). Individual behavior is a central element to this investigation. A qualitative approach is employed to investigate the empirical world from the individual perspective of AC.

Quantitative research concerns itself with measuring (Easterby-Smith et al. 2008c) behaviors in terms of individual action, by indicating the types of attitudes and the frequency of occurrences. However, this attention does not extend to why these attitudes

⁸ The study of being which refers to questions of what kinds of entities exist

⁹ The study of knowing which refers to questions of what knowledge is and how it is possible

exist in particular conditions and events in an organisation with specific characteristics. A qualitative approach attempts to increase an understanding of why individuals behave in certain ways (Rossman and Marshall, 2006).

Quantitative research is concerned with for instance the percentage of individuals who indicate that prior related knowledge is important in the AC process. The qualitative approach considers individual cases and the human understanding within those cases and asks why and how prior related knowledge is important. Quantitative work focuses on precision and finds an advantage in the ability to predict outcomes; however, in this study where knowledge and individual interaction are fundamental, these complexities may not be sufficiently represented with numerical descriptions. As mentioned in Chapter 2, the question of knowing is still debated, and quantitative approach claims to provide objective knowledge. Alternatively, and with reference to this study, qualitative methodology aims at relating to subjective understanding and actions of individuals. Although the quantitative approach can be authoritative, and claims legitimacy it also overlooks vital underlying individual knowledge and understanding.

The strength of quantitative approach in prediction and control over results can be viewed as a weakness in terms of organisational research (Easterby-Smith et al. 2008c). This methodology overlooks the individual's experience and provides a surface response to individuals as simply reacting to their environment (Cormack, 2000). This is problematic for the field of organisational research as a complex view of individuals as well as their environment is critical for deeper understanding, and quantitative methods do not facilitate this requirement (Hartley, 2004). The qualitative approach does not avoid the intricacies of the social aspect of organisational setting; rather, the aim is to illuminate and understand the social interactions that influence AC process, through a thorough and in-depth exploration. The history of AC research also forms a critical factor in the rationale for a qualitative approach. With a predominant focus on quantitative methods that shaped previous AC research, a corresponding gap was created that this investigation aims to fill and contribute to its future development. Consequently, this study seeks to contribute to AC literature through a complementary input by adding a qualitative investigation to an area dominated by quantitative studies.

4.3 CASE STUDY DESIGN

A qualitative case study design has been selected for this investigation. Yin (1994) defines a case study as: “*an empirical enquiry that investigates contemporary phenomena within its real life context especially when the boundaries between phenomenon and context are not clearly evident.*”(p.13). To reflect a more detailed definition and the epistemological approach taken for this investigation, Easton (2010) defines case research as “*a research method that involves investigating one or a small number of social entities or situations about which data are collected using multiple sources of data and developing a rich description through a iterative research process* (p. 119). As a research method (Yin, 2009) states that case studies can be used in a variety of research approaches. Mitchell (1983) states that the term ‘case study’ may refer to various epistemological entities, and is appropriate for this critical realist CR approach. The value of case study design for this research is in the visibility that it brings to the nature of the subjects under investigation (Byrne and Ragin, 2009; Yin, 2009). The main units of analysis tend to be organisations and relationships (Byrne and Ragin, 2009; Easton, 2010; Yin, 2009). Therefore this is an appropriate method and is consistent with the framing of this study, with the division as the unit of analysis. Other levels of analysis such as individual to individual, and between divisions also factor into this study. There is a difficulty in gaining access to these levels as they tend to be complex in structure and the relationships in which they engage. Essentially, case studies are known to be useful in understanding multifaceted phenomena. More importantly, case studies maintain the “*holistic and meaningful*” (Yin 2009, p. 4) elements of actual events.

The importance of the case study “*... is probably best understood as an ideal type rather than a method with hard and fast rules. Yet the fact that the case study is fuzzy round the edges does not mean that it does not have distinctive characteristics*” (Gerring 2004, p. 346). In addition, the case study can be used in circumstances when the investigation may be exploratory, descriptive or explanatory (Yin, 2009). The value of case research in this investigation is to support the development of constructs (Eisenhardt, 1989). Specifically, the strategy facilitates the question of what concepts are involved in AC processes; how and why the concepts relate to each. These questions point to a level of flexibility that allows sifting through intricate factors of learning in organisations as well as the relationships within several instances or events of AC. The process of iterative-parallel is raised where constant movement between the various stages of the research study is expected (Verschuren, 2003).

One of the benefits of the case study research is to gain an “in-depth “understanding of learning as AC in a “real-life” setting. This case study is “instrumental” in that it provides insight into learning in organisations, and as Stake (1994) clearly posits case research, “... *is of secondary interest; it plays a supportive role, facilitating our understanding of something else*” (p. 237). Darke et al (1998) advise that case research is intended to provide descriptions of the phenomenon, and in this case AC in order to develop or test the theory such that, “*Case study research has often been associated with description and with theory development, where it is used to provide evidence for hypothesis generation and for exploration of areas where existing knowledge is limited*” (p. 275). Explanation is also critical (Craib, 1992), even when description appears to be the more dominant approach. There is merit in both a descriptive and explanatory stance when possible, since it is through both that one can argue for a more holistic and deeper reporting of the case.

For an investigation such as this, case based research offers (Woodside and Wilson, 2003), “*a deep understanding of the actors, interactions sentiments, and behaviors occurring for a specific process through time and should be seen as the principal objective by the case study researcher*”(p.497). To substantiate this claim, Weick (1995), states that deep understanding involves knowledge of “sense making” processes which are developed by individuals. Sense making refers to how an individual, group or organisation makes sense of stimuli. Therefore the foci of sense making relates to what that individual, group or organisation perceives; it also frames what they perceive and interprets what they have done. The foci also involves the processes (includes nuances, contingencies in automatic and controlled thinking processes) they engage in to solve problems and the results of their actions (Woodside and Wilson, 2003). In achieving meaningful or “thick description” (Arnould and Wallendorf, 1994; Geertz, 1973) an investigation can be framed at different levels of depth and detail, however this is still not sufficient as the data collected may still tend to yield surface quality results. To provide a deeper picture of the events occurring in the research environment, describing physical features of the environment and the actors and their conversations will support the overall deeper understanding of AC and its influences. To add to this learning dimension, the subjective significance of persons and events occurring in a case study as well as the complexity in linkages and the causal (or influence) path among entities and concepts requires profound consideration (Dobson, 1999).

4.3.1 CRITICAL REALISM AND CASE STUDY RESEARCH

The openness that CR offers in selecting a research method for this study frames this investigation (Sayer, 2000),

‘Compared to positivism and interpretivism, critical realism endorses or is compatible with a relatively wide range of research methods, but it implies that the particular choices should depend on the nature of the object of study and what one wants to learn about it’ (p. 19).

Sayer (2000) argues that there are two general kinds of research methods, extensive and intensive. Extensive research methods normally exhibit the following characteristics; wide surveys, formal questionnaires and statistical analysis. They usually explore uniformity, patterns and similarities; accept specific taxonomic groupings and benefits from replication. In keeping with its characteristics extensive research methods also restricts the ability to generalise to other populations and in so doing limits explanatory power. This is where the value of qualitative research finds opportunity to provide another dimension to research methods.

For this investigation, the intensive research method which generally concentrates on individuals in context appears to be most appropriate. Also, in focusing on individuals through interviews as noted in this investigation, this method raises the question of “what produces change?” To clarify, Sayer (1992) adds that the extensive and intensive peculiarities are not to be compared to the survey-analysis/case study or ethnography differences. He explains that extensive methods may be employed within a single case study. However, intensive strategies are not bounded single cases and extend beyond ethnographic approaches. Essentially, Sayer (1992) lends support to case study research as an intensive method, and is therefore consistent with critical realist ontology.

The implication for this approach is considered in the process of investigating learning in organisations. As indicated in the review of literature, there is little empirical research on AC (Lane et al. 2006; Van Den Borsch et al. 1999). There has been a wide range of studies carried out using the AC construct but few have delved to deliberately adding to the theory (in areas such as individual actions and interactions within the learning dimensions such as exploratory, assimilated and exploitative learning) to understand its complex characteristics. Furthermore, those who have, provide an alternative theoretical variation without empirical support (Todorova and Durisin, 2007; Lane et al. 2006). Although Chapter 2 sets out the epistemological assumptions for this investigation, it would be remiss not to also address the research alternatives that CR offers.

This CR approach is appropriate for this investigation into learning as the context is concerned with the relationships and interactions within an organisation. In order to track the movement of new knowledge the perceptions of behaviour and the perception of others of the behaviours of their colleagues will provide a number of dimensions to their multiple realities, a tenet of CR. In addition, since the investigator is reporting on these events, it is also the investigator's lens on perceptions of the participants. As noted in Chapter 2, CR accepts that the "entire truth" may not be told, but with multiple truths as an assumption, one can move closer to that objective (Sayer, 2000). The collection of these perceptions form a greater understanding of what is occurring in the organisation. However, it is important to note that each perception is as important in providing a greater understanding of the event.

In determining the nature of the research question, what caused the events associated with learning when new knowledge enters an organisation, contributed to the development of the questions. Consequently, to understand AC within an organisation it is critical to record and analyse the associated events that occur as an outcome of the participants and objects performing, which in this case includes humans and technology. In this case the events are recorded live through interviews with humans about the past (memories) and can indicate evidence of relevant events.

The entities and objects are identified through the conceptual framework developed that directed the investigation. In keeping with Sayer (2000) filling a gap in giving attention to this aspect of the process,

"Much rests on the nature of our abstractions, that is, our conceptions of particular one-sided components of the concrete object; if they divide what is indivisible, or if they conflate what are different and separable components, then problems are likely to result" (p.19).

The framework has been modified since the first iteration. In qualitative research initial conceptualisations may change as the research progresses (Silverman, 2006) and clarifying what they are may be a key aspect of any research project. However, if theory is to progress then the basic entities and their powers and liabilities (Easton, 2010; Sayer, 2000) need to be powerful enough in order to have some continuity of existence in terms of extant theory.

Although, case research is essentially flexible (Byrne and Ragin, 2009; Easton, 2010; Yin, 2009), this investigation follows a rather traditional qualitative method of collecting data by semi-structured interviews. The strength of this method is that it is highly flexible and simple, so that the complexity of AC is given priority and the methodology highlights the content of this study. This investigation selected semi-structured interviews as a primary method of data collection since it provides avenues to discover plausible causal mechanisms in this study. As with all methods there are limitations associated with what data can actually be collected in specific research environments. The data collection phase was followed by analysis and interpretation of the data collected. Critical realists understand that there are distinctions between the actual and the real and that data are collected from individuals, and also from and about physical things. Therefore, explanations are essentially interpretivist in nature. Furthermore, the analysis of participant-based data by the researcher raises another problem of the double hermeneutic (Woodside et al. 2005). As with other qualitative methods, although interviews are important, critical realists do not think that discourse is sufficient to provide an understanding of the event holistically. Consequently, data were also collected from documents (annual reports, council meetings; promotional presentations) and observation notes (hallway meetings, annual retreat) in the field.

Ideally, searching for explanations involve the researcher going back to the field to collect data (Easton, 2010) “...until *epistemological closure, however flawed and temporary, is obtained*” (p.124). In achieving a higher level of consistency and understanding of retrodution is necessary. According to Sayer (1992), retrodution is a “...*mode of inference in which events are explained by postulating (and identifying) mechanisms which are capable of producing them...*” (p.107). It is recognized as the key epistemological process by critical realists. The outcome of retrodution is in effect the recognition of mechanisms that explain what caused particular events to occur (Sayer, 1992). The identification is not a result of assumptions; rather when conducting actual research, a recursive iterative process is more likely (Dubois and Gadde, 2002).

This case study employed both a deductive and inductive cycle of data collection. In using the deductive approach, the researcher was able to identify AC as the phenomenon to investigate, and this facilitated the initial understanding of the potential mechanisms and interaction from the literature. The induction approach allowed the researcher to collect the event data which provide evidence to form explanations and then evaluate the

explanations. These explanations raise and show causal language and detect mechanisms from the data collected as confirmation. Continuous questioning is crucial since different mechanisms can cause the same events (Sayer, 2000). Also, if more than one mechanism is identified, the case method allows for modification to address other mechanisms that may be at play. That means with several possible mechanisms at play selecting a particular mechanism that is more likely will be required. The credibility in the explanation given is tied with the concept of “judgment rationality” which (Archer et al. 2004),

“... means that we can publically discuss our claims about reality as we think it is, and marshal better or worse arguments on behalf of those claims. By comparatively evaluating existing arguments, we can arrive at reasoned, though provisional, judgements about what reality is objectively like; about what belongs to that reality and what does not ” (p.2).

4.4 NON-PROBABILITY SAMPLING

Contrary to most qualitative researchers with the view that sampling size is not an issue (Onwuegbuzie and Leech, 2005), the design for this study included a careful attention to the structure of the sample. Unlike probability sampling, where the aim is to produce a statistical representation, qualitative research requires that the phenomenon, in this case AC, only materialize once (Willmott, 2005). In addition sampling is critical for this study as it embodies the multi-dimensional aspects of AC. Generalisability of this investigation is substantiated through the structure of the sample which echoes one of the influences studied in relation to the phenomenon. This plan also provides an additional dimension for reflection as it marries the process of discovering evidence of AC. Case study research allows for reflection on both the method of discovery and the functioning of the construct itself. The decisions as to how many individuals to include in a study and the conditions under which this selection occurs, are significant as advised by Curtis et al (2000), *"It seems essential to be explicit about these [decisions], rather than leaving them hidden, and to consider the implications of the choice for the way that the ... study can be interpreted"* (p. 1012).

Although sample considerations associated with positivism are rejected by qualitative researchers (Lincoln and Guba, 2000), the value of sampling should not be overlooked outside of the positivist arena despite being developed within that approach. This investigation addressed issues of sampling although it is not overemphasized for fear of

“methodolatry,” which refers to having (Janesick, 2000) "*a preoccupation with selecting and defending methods to the exclusion of the actual story being told*" (p.390). Furthermore, conducting research with several cases is not to increase the sample size as traditionally done in statistical research, rather it is to increase the richness of the event and story under investigation, by providing more information from various angles that surround the phenomenon (Easton, 2010 ; Ragin, 1995 ; Yin, 2009).

Following the qualitative stance this investigation does not claim to make generalizations related to an underlying population. This investigation intends to develop analytic generalizations (Miles and Huberman, 1994), which can be "*applied to wider theory on the basis of how selected cases 'fit' with general constructs*" (Curtis et al. 2000, p. 1002). To achieve richer analytic generalizations, first the researcher collected data that reached theoretical saturation (Strauss and Corbin, 1990), or informational redundancy (Lincoln and Guba, 1985), and secondly data saturation (Flick, 1998; Morse, 1995). This was done by monitoring the repetition of events and perceptions in similar descriptions and did not add to the data already collected. These strategies as well as appropriate cases and structure of sample provided the grounding for thick and rich data to be achieved.

To maintain a flow and a gradual build of this investigation, generalisability was the next issue of significance. Maxwell (1992) views generalisability in this context as the degree to which an investigator can generalize the report of a specific instance or population to other individuals, times, location, or environment. Maxwell (1992) expands on this and provides two types of generalisability. The first internal, speaks to generalisability of a conclusion within the environment or group studied. The other, external generalisability extends beyond the group, environment and location. As a qualitative researcher, internal generalisability tends to be more important (Maxwell, 1992), and particularly for the nature and scope of this investigation.

The method of sampling is another factor that defines case research. A case is a simple instance or in particular an example of one (Easton, 2010) and therefore the main constraint is statistical representativeness. The sample for this investigation is unique in that the relationships between individuals are the pivotal elements in the framing of the sample within the organisational structure. It does not depend on statistical value to determine frequency. The sampling for this study was developed to trace how and why new knowledge moves between individuals and through divisions and between divisions. Although as in this investigation, more than one case is being investigated this approach

is not for the sake of increasing sample size as in the traditional sense. The sample structure was developed to represent how learning may occur within the division and individuals who would be involved based on the operations of the division. As in this study a non-random purposive sampling is often employed in qualitative investigation (Willmott, 2005) where the number of people interviewed is less important than the criteria used to select them. The characteristics of individuals in relation to their organisational environment are used as the basis of selection, and are most often chosen to reflect the diversity and breadth of the setting in which the investigation occurs.

4.4.1 RATIONALE FOR STUDY SAMPLE

The intention was to collect data that represented the perceptions of employees who may be close enough to the changes to share their experiences. There must be a representation of individuals throughout the organisation who can provide evidence of how this new knowledge affected their work processes. The variation in experiences at different levels and work processes across the organisation would offer a rich and thick description of the organisation.

Roles / Divisions (Respondents)	CEO Office	Evaluation (Admin- istration)	Finance Division	Human Resources	IT	Evaluation (Development Production)	Qualit y Unit	Business Develop- ment	Branch Office Deputy CEO
Head (9)	1	1	1	1	1	1	1	1	1
Officers (23)	3	2	1	1	5	4		1	6
Tech Officers (6)					2	3			1
Adm. Officers (16)	3	4	2		1	1			5
Total (54)	7	7	4	2	9	9	1	2	13

Table 1 - Structured Sample from cases

This table provides basic information about the informants and the various divisions that they represent. It also provides a view of the various groups that the informants fall into across and within divisions. The total number of informants interviewed is also represented.

Data were collected from one organisation as indicated above, and from each division as this is the unit of analysis for this investigation. The hierarchical approach also allowed for the opportunity to consider different levels of analysis and therefore groups at different levels were interviewed. This incorporated one of the assumptions of CR that is multiple view points of the same event. This construction of multiple perspectives can provide a more complex view of the event with the factors that impede or support absorption. These individuals were targeted because they would provide a layered and

perceived lens of the movement of new knowledge into the organisation. Data were collected from individuals within divisions of the organisation based on their interaction with the changes that were occurring. The first round of individuals was selected based on the recommendations from the head of each division. To counter biases from the heads each of the recommended informants was asked to suggest another individual. In addition snowballing technique was used on site when the researcher was in the field.

The sample was selected in two ways. First, the researcher conducted preliminary interviews with the head of each division. The purpose of this interview was to determine from the perspective of the heads what they thought were good representatives to indicate what was going on within the organisation. The intention was to begin with these suggestions and initiate tentative appointments. The research did not expect the heads of divisions to suggest the entire sample. The initial suggestion from the heads produced approximately 20 individuals, with the understanding that not all of those individuals would be available during the period set out for interviews. When the researcher arrived at the site then the snowballing technique was employed so that individuals from various levels and divisions were engaged so that there were multiple views of the AC process. This was important for facilitating the CR assumption of multiple truths and realities as well as the various levels of analysis of AC process.

Saturation was achieved when evidence data at four different levels of analysis and from divisions did not offer new insights, with respect to the roles of divisions in the AC process. Individuals who were not involved in a change process were excluded from this interview. Although, the intention was to interview fifty of the approximately 160 employees, fifty-six interviews were conducted, given the time for data collection and accessibility to the organisation. The nature of the sampling is framed by the choice of the case study strategy and qualitative approach. This framing dictates that this stratified approach show a representative sample from all parts of the organisation.

Stake (2000) posits that *"In intrinsic case study, researchers do not avoid generalizations--they cannot. Certainly they generalize to happenings of their cases at times yet to come and in other situations"* (p. 439). This supports the argument that thinking about sample size and sampling is required and constantly important in qualitative research. This design demonstrated the multidimensional nature of sampling. While sampling affects cases, it delves deeper and is also relevant to units of data such as

interview and observational data. The decision to have half hour to forty-five minutes, rather than a ten-minute interview indicates that the researcher requires more in-depth understanding of the relationship between individuals participating in the events under investigation. An extended interview, with retrospective views was more appropriate as it allowed the researcher and participant to discuss AC with reflective perception. To get a better sense of how the phenomenon operates within the organisation, all divisions within the organisation were treated as cases. This decision was made so the best possible frame was created to be able to investigate the relationships of the individuals and their behaviours and the structure within the organisations that they adhered to.

The intention to observe interactions and work processes included considerations into the number and the extent of each observation (Onwuegbuzie and Leech, 2005). Theoretically, these decisions should be made with the goal of achieving long periods of meetings and constant observations (Lincoln and Guba, 1985). In this investigation, these considerations were compromised by the availability of individuals for interviews and the researcher's options to observe. Despite the flexibility built into this investigation, and how observations potentially add evidence to tell the story, the reality was that during data collection competing factors, including time, accessibility and new developments in terms of security compelled the researcher to further modify plans of action. Consequently, the scheduling of interviews took precedence and the extent of observations was limited due to heightened security after a recent breach in the organisation. In reality, flexibility in the field is a critical skill, notwithstanding a determined plan embodying sampling concepts that will add to the quality of data; ensuring rich and thick characteristics, so that meaningful analysis may be made is also essential.

Creswell (2002) advises that three to five participants be used for case study research. This investigation is a multiple case study, with nine cases. Participants from each division ranged from one to thirteen due to the size of the division (HR, Quality, Business Development) and the nature of the work processes. The nature of the study and the phenomenon under investigation included 54 individuals. This study considers sample sizes in relation to achieving data saturation, theoretical saturation, or informational redundancy.

4.5 DEVELOPMENT OF INTERVIEW SCHEDULE

This section provides the rationale for and considerations on the development of the semi-structured questions for this investigation (See Appendix A and B for Interview Schedule). The questions create an additional layer to this investigation established by the stratified sample. The interactions between individuals within this work setting in relation to information sharing and seeking are indicative of AC process are evoked and outlined. Considerations in the manner in which the questions could be asked, as well as the focus on their individual perception of events and actions, were given careful attention. Integral to the questions was careful thought to what information that might be provided and how it could be safe guarded so that the potential of truth of individual realities would be more trustworthy.

4.5.1 DEVELOPMENT OF QUESTIONS

The questions were developed with a number of ideas in mind. Firstly, they were informed by the literature review and identified gaps. Secondly, by the experience of the researcher in questioning persons in relation to things that they were not aware of, and third, the approach to information seeking as put forward by Dervin (1998). The last factor is the methodological gap indicated by the literature. The questions were divided according to the three phases of AC discussed in the literature review. The schedule is in three phases and represents to some extent the multidimensional conception of AC learning processes. The questions for this case study asked (Yin, 1989), “*who, what, where, how and why...*” (p.185). Specifically, who are the individuals in the organisation; what knowledge and learning processes do they engage in and how do they do so. Why do they engage in those processes, and where do they do so? The questions asked are explanatory in nature and in case base research are appropriate. Yin (2003), clarifies “... *This is because such questions deal with the operational links needing...*” (p. 5), to be traced over time and within the organisation related to the roles of each division. The focus of the study is on how new knowledge may change work processes. Hence the questions encouraged thinking in terms of how does the informant view new knowledge that may alter work practices.

EXPLORATORY LEARNING

The researcher connected an element of exploratory learning with the act of information seeking which relates to the background of the researcher within the information field. The idea was to establish this information seeking and the behaviours of divisions within their individual units. The ways in which information is sought is an indication of how

individuals are active in response to new knowledge that may in some way become a part of their environment. The argument that the individual is a critical component of AC (Cohen and Levinthal, 1990) is given due consideration in terms of their influence on new knowledge within the organisational environment. This is addressed by the way in which the researcher decided to look at the AC construct; the questions sought to discover perceptions of new knowledge and how interviewees interacted with other employees in relation to new knowledge (NK). They were asked to define it for themselves, and how they would seek it out and recognise it in relation to their work environment. The value of it and the way it may be used were also given due consideration to interpret their perception of NK. Theoretically, these questions provided grounding for the way in which the NK would be used at the next stage of the absorption process. These responses were closely related to work processes in which the interviewees engaged.

More importantly, the questions allowed the researcher to explore the independence of learners and in what ways they took control of their own learning. The diverse approach to learning in relation to a specific task could be examined, as well as the support of the organisational structure, the behaviours and the impact on specific organisational events. These questions opened up avenues to investigate to what extent and in what ways do individuals and divisions move away from existing knowledge and rules, norms, routines, activities in pursuit of new possibilities. In addition what influences determine how they recognise the value of new knowledge? How does the organisation affect this uncertain process that deals with constantly searching and recognising new work related opportunities?

TRANSFORMATIVE LEARNING

The questions related to assimilative and transformative learning focused on interviewees reflecting on how newly recognised knowledge was used in relation to processes in which they participated. Examples of those questions were ‘what their actions as individuals were’, and ‘how they were acting within their work groups’. Through these questions informants may indicate where prior related knowledge or other factors may influence their learning processes. These questions will provide indications of the processes that these interviewees go through when handling NK. The relationship and actions are key to the underlying critical thinking that may have occurred during the experiences that participants were recounting. The way in which reflection is perceived, or if it is perceived at all will provide yet another clue to this learning process within units, and by extension, within the organisation. The questions focused on individuals’ actions and

also discussions in a group setting and the process of selecting aspects of identified new knowledge or related to an event and what they did and why. In addition, the question of “why” would trigger some aspects of reflection for selection or choosing to share or discuss. These actions would provide indications of how NK moved or not and why it moved or not. Also the nature of the change associated with the NK as well as reasons for change or not. The actions associated with a form of change through interaction with a colleague would also provide an indication for the nature of the interaction and give a sense of what the atmosphere was for information and knowledge sharing or not. Essentially, the questions allow for critical reflection about change (Merriam and Caffarella, 1999). Since the questions were related to retrospective activities and processes, reflection also depends on what organisations know. The influence of memory is taken into consideration and there may be a negative or positive reaction to new knowledge initially which may have changed overtime.

EXPLOITATIVE LEARNING

This last stage simply tapped into the general idea of the respondents’ perception of how they thought integration of new processes occurred, generally and if they could speak of an example and to describe what happened. The idea was to question the hindrances and supporting factors that allowed the established processes to change within the organisation. This question provided another opportunity to check consistency in the responses and see where there may be a culmination in the processes. The intention was to elicit how established processes were changed and the nature of those changes. The perceptions at different levels of the organisation may provide the pieces of the entire picture of AC process where integration of new knowledge is applied to the processes. This was an open question that would allow participants latitude in singling out events that affected them.

4.6 THE INFLUENCE OF THE RESEARCHER’S EXPERIENCE

The researcher’s personal experience in information and library work, with students on the verge of working and also dealing with students working for the first time provided examples of the challenges and the direct link to information-related actions when at school and how they also acted when in a work environment. The researcher was also influenced by Dervin and Dewdney’s (1986) work as it underpins many of the ideas associated with the development of the questions. In particular, the experience of the researcher in information management, librarianship and knowledge management as well as the notion of lifelong learning raised questions concerning how individuals reacted in

circumstances where new information and knowledge are required to address a situation. Essentially, the researcher thought that there was a link between the manner in which individuals addressed information and knowledge gaps that also indicated how they learn. Dervin and Dewdney's (1986) work *situation-gaps-uses model* underpins the ideas here that of sense making when seeking information to address a gap.

Dervin (1986) refers to three critical elements of this process, the specific situation, the gap that the individual is attempting to overcome and the use that may be identified. The situation in this case refers to the events occurring within the organisation under investigation and also the occurrence that had raised questions, which are also related to them as a unique individual. Dervin and Dewdney (1986) clarify, "...*The gap, seen only in the mind's eye, is translated into question form during the reference interview, and the answer to the question may be seen as a bridge across the gap* (p.507). The third element refers to the way in which the answer is used, specifically, "...*what the seeker/user hopes to do after crossing the bridge*". Critical to this is (Dervin and Dewdney, 1986), "...*the gaps individuals face (i.e., the questions they have) depend upon the way in which they see the situation and how they are stopped. The kind of answers they want is dependent on how they expect to use or be helped by the answers...*" (p. 507). The questions related to AC formed an approach as described in the above mentioned method are well suited for a semi-structured interview strategy to collect data.

4.7 UTILIZING SEMI STRUCTURED INTERVIEWS

Kvale (1983) offers a definition of qualitative interviews through its purpose, "...*to gather descriptions of the life-world of the interviewee with respect to interpretation of the meaning of the described phenomena*" (p. 174). The main aim of this investigation as stated by King (2004) is to see the subject under investigation from the point of view of the interviewees, and to understand also why they hold such a perspective. To facilitate this line of questioning, qualitative interviews tend to consist of low structuring or open-ended questions, and a focus as in this case, specific events, and actions in response to change within the organisation. Also, this investigation is guided by a conceptual framework and as such the semi-structured interview is most appropriate to garner the evidence to investigate AC in the form of ETE as outline in the literature review.

Semi-structured interviews are informal but focused conversations aimed at encouraging a two-way conversation and not merely a neutral conversation with the respondents as has

been argued by a few researchers (Atkinson and Silverman, 1997). Therefore, based on the epistemological stance established for this investigation, and the acceptance of the researcher as a factor in this process, the interview is seen as a collaborative effort (Fontana and Frey, 2005). This means that the interviewee can also ask questions of the interviewer. This method also provides opportunity for learning for both the interviewer and interviewee. In this way the responses given are clarified with reasons for the responses or actions according to the interviewee. This is in marked contrast to questionnaires and survey with structured questions that are fixed. Semi-structured interviews are guided conversations, where questions do not entirely restrict the conversation, but allow for new questions to develop as a consequence of the dialogue. To create a context, the interviewer presents the objectives of the study, but allows for discussion and opinions from the interviewee. The researcher followed a set of questions (See Appendix A and B) that needed to be asked but a specific order did not need to be defined. The researcher then moved through the questions as required and based on the conversation as it progressed. The questions were directly related to concepts comprising the conceptual framing of AC processes. However, the questions did not have the terms specific to the AC process, but were developed in simple language to create the informality required so that the discussion would be at a comfortable level for participants.

4.7.1 CHALLENGES OF SEMI-STRUCTURED INTERVIEWS

Semi-structured interviews offer some advantages if used effectively by the researcher. Therefore the development of rich, relevant data rests on the interviewer's ability to understand, interpret, and respond to the verbal and nonverbal information provided by the informant. Although semi-structured interviews can be an informal way to obtain insights not possible from structured questionnaires, unforeseen topics may emerge. These kinds of open-ended data tend to be difficult and time-consuming to synthesize and provide clear results. In addition, it can be challenging to maintain focused interviews which then complicate the ability to corroborate and compare interviews (Fontana and Frey, 2005). There are certain skills which are required for interviewing, providing interview context, sensitive listening, sensitive questioning, judging responses, recording the interview and self-critical review to create a relaxed atmosphere (Denzin and Guba, 2000). Simple language was used, and technical jargon was avoided so that the individuals at all levels could understand and participate fully. The possible political and

organisational cultural issues were given full consideration to minimize conflict before, during and after the interviews.

4.8 PILOT STUDY

This pilot was an exploratory investigation of AC within a division in a public sector environment. The aim of the pilot was to explore the individual perspective of the three dimensions of AC namely, exploratory, transformative and exploitative learning (Lane et al. 2006); and to provide preliminary insight into the phenomenon in that context. The division under investigation is charged with administering the education requirements of a community. The division comprises one head with three unit heads that are responsible for functions of their individual units within the division. The first of these subunits have responsibility for improving and maintaining the educational content and assessment operations of the division. The second is responsible for the planning for implementation of new projects. The third facilitates the collection of internal raw data directly from the schools and they also advise officers who also train teachers. The division has budget limitations, and final decisions are made by the head.

The pilot involved 12 individuals from varying levels of the division. This sample represented the structure of the organisation with one individual at one level up the hierarchy and others below. The individuals were flanked by additional members and a total of twelve (12) in-depth interviews were conducted. Data collection involved one-on-one telephone interviews with the twelve (12) individuals who form part of a triangulation of perspectives within the division. The sample was structured hierarchically with one senior participant and two other participants, and these three participants were considered primary participants. Each primary participant was then partnered with another individual within their unit in some cases. This process was replicated among 12 individuals in total.

This arrangement represented the organisational structures of how knowledge may flow in order for processes to function. This configuration provided opportunities for the tracing of the way in which knowledge moves and possibly changes as it moves from one individual to the next, and vertically or horizontally within the organisation. The partnering within the unit will again provide evidence within the division to possibly gain insight into the movement of knowledge within the group. Partners were identified based on a relationship where movement of knowledge is a critical aspect of their work in relation to the other partner.

The pilot raised a number of questions and revealed new opportunities to refine the research design and focus of this study. The results of the pilot shed critical light for the wider research to be done. The questions posed and the response as to whether respondents were indeed able to recognise and understand new knowledge from their perspective seemed to produce a consistent response. Exactly how they were able to do so was not so easy to explain. Individuals felt that these questions such as negative or positive feeling about new knowledge required considerable thinking and appeared to be ambiguous.

The method of the investigation needed to be revised in a number of ways. First, although respondents could respond to the questions posed and give a context, the events that they related to required more focus. The responses may relate more to a specific event that affected the entire organisation. This may allow for the thinking that is required to be more focused. Also, the focus as a group thinking about similar events could create a better environment to trace the development and changes to knowledge as it moves within units and divisions. Invariably, three consistent examples were discovered through this pilot. If these events were known before the actual interviews, the questions could relate to events that were for example more real, and that individuals were involved in. In this way the questions could have specific referrals allowing for some latitude, and responses could be more focused and provide deeper insight. The strategy was influenced by Dervin's (1998) methodological approach to questioning, so that the main interview schedule was refined to reflect the changes that defined a procedural approach to the interviews. This allowed for greater ability to trace the movement of new knowledge within the organisation.

4.9 THE CASE OF AQUACON

The selection of Aquacon for this investigation was based on the recognition of a dearth of indigenous research in information and knowledge-related activities in organisations in the Caribbean. The CEO argued that research in information and knowledge processes could complement the strategic intentions of Aquacon. The CEO asked if the researcher would consider the organisation as a setting for investigation. The CEO argued that this was as much an opportunity for the organisation as it was for the researcher to contribute to research on information and knowledge activities in the Caribbean. On preliminary investigation, the researcher found that there was potential for investigation to explore

possible organisational learning processes associated with new knowledge and possible innovation. This was based on major planned changes for Aquacon. This was a suitable case as it would highlight a number of different areas related to information and knowledge behaviours as well as learning processes. In addition, new knowledge was entering the organisation and there was concern about the reactions of employees.

4.10 RESEARCH ACTIVITIES

The following provides a chronological account where possible about the research activities carried out in the collection of data. The experience of the pilot study and the lessons learnt from that initial activity are woven through this account to demonstrate the development of this investigation. In the interest of cost, availability of informants and time required for face to face interviews, the pilot study was conducted through phone interviews. The researcher travelled to the two sites of the organisation spending five weeks in the first instance at the Headquarters of the organisation and two weeks at the branch office. The pilot conducted in July 2009 provided insights into lessons to improve on the research activities for the main study. Specifically, informants found it difficult to provide examples of new knowledge that they were a part of, or were currently engaged in. Also, the examples given as participation in events that showed evidence of the AC phenomenon were very broad, leaving very little opportunity for corroboration. The methods were modified to include a more targeted approach in identifying events that were common to participants so that the researcher could refer to when required.

4.10.1 DATA COLLECTION

A letter was sent to the CEO of Aquacon (See Appendix D) requesting access to the organisation and also for a preliminary interview with heads of divisions (HOD). Based on feedback through responses from the pilot, the researcher included a preliminary interview for fact finding purposes, which established what HOD's thought were the events that were happening within Aquacon. This would allow the questions to focus on relevant areas and point to events when certain informants were not able to think of examples during the interview. The data collected from the HOD's identified the events occurring in the organisation within the last five years. In keeping with the snowball strategy the HOD's also identified persons who may have been involved with the events. The names and contact information of potential informants were provided with the understanding that when the researcher arrived that others would also be identified.

The initial names provided allowed the researcher to contact approximately 25 informants prior to arriving at the organisation. The email/letter to each informant (See Appendix E and F) outlined the nature of the study and the contribution they would be making and the potential value for the organisation. The letter also stated each informant's right not to participate with impunity. Informants were required to respond to the email indicating their willingness to participate in the study. This communication was strictly between the researcher and the individual informants. The researcher did not discuss anything else with HOD's in this regard except for the furnishing of prospective names of persons (and contact details) who may be able to speak about the events. The HOD's indicated that not every informant suggested would be available so the researcher anticipated a flexible scheduling of interviews. The CEO provided a liaison officer who worked with the researcher to organize meetings and interviews. Prior to the researcher leaving the UK tentative appointments for face to face interviews were scheduled between February 22 and April 2 2010.

When the researcher arrived at the organisation, the preliminary interview schedule was modified through confirmation of individuals who may be available during the data collection period. The structure of the sample was maintained when adjusting interview appointments of individuals. The general tenor of the snowballing strategy was based on the basic principle that individuals would be added as the interviews progressed and during interviews other employees were suggested. In addition, the researcher would also ask individuals over the course of the period of time in the organisation. The researcher ensured that individuals represented a cross section of the different divisions as well. To that end, the researcher constantly monitored the individuals who were already interviewed, as new informants were added to the interview list. This "juggling" was managed in terms of the times available and accessibility to individuals as well as the above mentioned concerns. Although interviews changed at will and from day to day the core sample representation did not change. This was adhered to because the researcher ensured that when individuals agreed to, or were added to the schedule a representative strata of the organisation remained so that a representative sample was constantly maintained. In order to facilitate this, the researcher agreed to interviews at early hours of the morning and after working hours for a sustained period of time due to the deadlines of some of the participants. On the days when this occurred, the immediate additional notes and reflective thinking about the interviews were compromised in that additional field notes supporting the recorded interviews were not written as clearly as expected.

During each interview, respondents were also asked to name other persons who would be interested in participating in the study. The names of potential informants were provided in particular when something of interest came up during the interview and the informant could not shed further light on the matter. Another modification to the schedule was to facilitate the annual staff retreat. The researcher asked if she could attend as an observer and was given permission. During the retreat, the researcher also took opportunities to invite persons for the study, while ensuring that there was no interference with organisational activities. The researcher ensured that her presence was mainly observational. This rolling schedule was supported by a constant collection of names and contact details of additional respondents. Introductory emails were sent to respondents so that they were made aware of their potential role in the data collection exercise and they indicated their agreement by replying to the email. Due to the rolling schedule it was a challenge to maintain the formal process of inviting participants. However prior to any interview each respondent was told of their right and that they did not have to participate. They were given a copy of the email to read as well as the general questions that form part of the interview. The researcher attempted to create a relaxed and informal atmosphere with the intention of putting each interviewer at ease whenever necessary. Each interview was recorded carefully and checked for interferences that may hamper the transcription process. At the end of each day the researcher would ensure that a copy of each interview was stored online for security purposes and also to ensure that there was more than one copy.

The researcher sought assistance in transcribing 25 interviews. This was largely due to the number and length of interviews given the funding and time allocated for the entire research project. Therefore when the researcher recognised the time constraints, transcription of the remaining recorded interviews were outsourced. The assistants were provided with guidelines to ensure that the transcription conventions used by the researcher were maintained. In addition, each transcript was reviewed by the researcher.

Documents were collected during interviews when individuals referred to their own documents or reports that they were working on either for their division or for the organisation. Some documents were not provided and this was primarily due to confidentiality.

Observation

The initial design for observations was a support to the interviews so that there was corroboration about how informants related to each other in meetings. There were a number of issues that did not allow this to happen. The physical layout of the HQ and the high level of security for some of the divisions meant that the researcher was not able to go into some areas. The retreat offered an alternative and it was used instead. In addition, the conflicting scheduling of interviews with observation of meetings meant that the researcher was not able to conduct some of the interviews. The researcher made the interviews a priority, when there was conflict with opportunities for observations that compromised interviews. This guiding principle was established to ensure that the interviews were conducted and the observations would be accommodated given the above mentioned conditions. The decision to focus on the interviews also meant that the structured sample would not be compromised. This was key to maintaining the link to the CR tenet of multiple realities and at different levels of analysis (theoretical assumption of AC) by ensuring that multiple perceptions from informants were given priority in the investigation. Although this reduced on the opportunities for observation the perceptions of the informants were more important, given the design of this study.

Interviews and observations for this study were concluded for two reasons, firstly the allotted time period ended and secondly, saturation was achieved as informants were not adding new information or offering original content. The researcher may have been aware of other individuals who may have been useful; however time did not permit additional interviews. Woodside and Wilson (2003) state that to achieve greater understanding of processes and other concepts of a phenomenon (in this case AC), the individual's perceptions of their own thinking processes, intentions and contextual influences are identified as the principal objective of case study research. Listening to themselves articulate their own perceptions may also create an opportunity for learning as this conversation is also an information and knowledge sharing activity.

4.11 TREATMENT OF BIAS IN STUDY

LeCompte and Preissel (1992) argue that due to its subjective nature qualitative research is distinct and that a statement of bias from the researcher is the norm. Creswell (2000) lends support to this outlook and added that the researcher was integral to the research process. In this investigation, the researcher established the assumptions that guided the

study. The researcher assumed that there were underlying issues related to the operations and behavior of individuals in organisation, hence the use of a CR approach as well as the assumptions of a practiced based epistemology to shape the lens of this investigation. This forms the basis for the researcher to expect that individuals responded to events in the organisation with information that may not be identical. In this way there appeared to be individual construction of events, or group construction of events that differed. This awareness provided opportunities for informed conclusions about findings in terms of suitable interpretive principles and the scrutiny of the researcher.

Consistent with the researcher's stated epistemological position, the bias of the researcher is evident and forms a part of the research study. To increase credibility, the researcher's bias and research assumptions and view of the world is outlined (Creswell, 2000). However, the experience of the researcher of behaviors in organisational settings showed individuals did not express their views openly. The researcher wished to listen to those views and recognise their value in the AC process. As such the assumptions were that the researcher thought that there were deeper issues that were withheld or overlooked on the part of management in organisations and on the part of individuals who thought that their voice did not matter. In understanding the complexity of this investigation, the respondent's voice is dominant and the researcher is a simple storyteller. Their voices are clear in the analysis and the interpretation is guided by the interaction with the researcher.

In an effort to understand and not predict why and how these underlying issues came to be, the investigator, assumed a suspicious approach in dissecting the issues and examples that developed throughout each interview. The history, the current events occurring at the time of data collection formed a very real core for the investigation. The researcher adopted a flexible approach and sought to adjust to the interviews as they progressed although simultaneously attempting to keep focus on AC which is under investigation. The intention was to collect data with all documents and observations of the organisation, however, in reality, this did not materialise as expected.

Generally, for this investigation issues of bias were addressed when the researcher stated assumptions and also established the rationale for using case study method. Interviews were recorded and transcribed verbatim. Therefore the researcher had access to both the audio and the text when considering the transcript through analysis and interpretation. To increase authenticity reporting words directly from the informants formed the majority of

the text, when there was deviation it was to increase readability. Given the above mentioned conditions and circumstances, the researcher has made sufficient effort, to guard against bias. Despite those efforts, Kolb (1991) provides a realistic comment, *“Totally bias free social research, using either quantitative or qualitative methods is impossible.... evaluators cannot eliminate all bias from their studies”* (p.40).

4.12 NON-RESPONSE

The researcher considered non-response in a number of ways. The implicit care taken with treatment of informants in terms of creating a relaxed and informal atmosphere was an encouraging foundation to begin the interviews. A few informants did not respond to questions indicating that they did not know or they do not remember. The preliminary fact finding activity provided opportunities to explain and reiterate the potential value to the organisation in terms of creating a greater awareness of information and knowledge activity to each individual and to the organisation. The researcher ensured that the interviewee was comfortable and that the interview would be rewarding to them throughout the conversation. This was encouraged with simple reflection of themselves as individuals and an appeal to their personal goals framed within the organisational context. This is another dimension woven into the questions from Dervin's work where the focus is entirely on the individual throughout the interview, with the researcher's sole purpose was to listen attentively and respond with understanding.

Issues related to non-responses from informants in terms of inability to attend interviews were due to unavailability, when work and interview conflicted. The researcher circumvented this by being open and flexible as indicated in the previous section on research activities. Also, the potential for refusals was reduced by stating clearly that the decision was the informant's and at all times the disposition of the researcher was engaging and most appreciative of their contribution, and that what they were saying was important. Some informants did not feel that they could answer the questions and the response from the research appealed to the critical role they all played. One informant although consented to participate in the interview did not show an interest and used every opportunity to do other job related activities throughout the interview. The researcher kept on point and whenever there was an interruption, the informant was able to continue the interview exactly where she left off. The researcher persevered through that interview and by the end had the full attention of the respondent.

The questions were developed to ensure that they were clear, but also allowing for a conversation. The questions were interesting to the informant because it was about the informant and their perspective on work related matters. Informants were happy to know that their views were treated as important. One informant began the interview with, “*If you are taping I will only respond in a particular way*”. With this frank statement, the researcher began by asking the respondent about certain work processes and the nature of the PhD that the respondent was pursuing. The preliminary exchange on challenges of part time PhD studies was fertile ground and in response for example to access to literature, the researcher as a professional librarian offered a few tips in that regard. With this exchange the respondent relaxed and conceded to a recorded interview. The researcher reassured the informant that no one in the organisation would be able to see transcripts of or listen to the interview. Overall and throughout each interview informants were reminded repeatedly of the significant contribution they were making and the researcher’s gratitude. The researcher also outlined how this exercise could be of use to the organisation.

Since informants had to balance work and wanted to take part in the interview, they asked if the researcher could begin earlier in the day for a particular group of individuals. The researcher readily agreed and interviews were conducted in order that these individuals could meet their deadlines. The researcher built trust by relating how the results would be used to help the region and the organisation. The researcher provided necessary background information about herself and committed to answering as truthfully as possible any questions posed by informants. The researcher ensured that there was a comfortable and relaxed atmosphere and the researcher was there to learn from them through their experiences. Although the CEO indicated the period agreed for the interviews to take place given the organisation’s schedule and that of the researcher, there would be a number of compromises. Therefore, non-response after data collection was expected since the organisation enters the most challenging of periods of the year. This was an unavoidable condition and the researcher attempted to collect as much data as possible given the restrictions on access. A limitation of this study was realised as CR methods encouraged constant feedback as a means to achieving as far as possible high level of accuracy (Reed, 2005).

4.13 ETHICAL CONSIDERATIONS

Deyhle et al (1992), provide appropriate advice that links the intent and reality of ethical issues in research;

One is not suddenly faced with ethical decisions when one goes into the field. He or she is faced with behaving in an ethical manner at every moment, doing qualitative research in the field simply creates specialized situations with more extensive ramifications that must be examined. (p. 639)

In working with organisation, much of the literature on ethics comes from social sciences (Bell, 2007). In cases such as this where an organisation is going through change and issues of job security are high, the researcher must reflect and integrate the intent of the above statement throughout research activities. As with informants in general issues of power and politics, anonymity, privacy and confidentiality are critical. As indicated in the research activities informants were informed of the nature of the research and indicated their consent by replying to an email prior to the interview with the researcher. Individuals and the organisation that kindly consented to this investigation were personally thanked for their involvement and participation in the study.

In conducting this research the researcher was careful to follow ethical guidelines and regulations as agreed to by School of Management, Royal Holloway, University of London (See Appendix C). Nevertheless, ethics is not simply about following rules, rather the researcher must bear in mind throughout the entire research process to ensure that the findings of the study are not detrimental to the informants (Merriam, 1998). This is even more apparent in cases such as this when using qualitative methods, and when the investigator has more influence in terms of bias and therefore has more control over how the information is gathered, recorded and interpreted (Yin, 2009).

Of primary concern for the researcher was the comfort and ease of the informants. The ability to interview so many individuals was largely due to their kindness and the friendly but professional interaction with researcher. As advocated by Aguinis and Henle (2002), the investigator took many precautions to protect informants within the organisation. Informants were briefed and were told that they did not have to answer any question that was uncomfortable. Also during interviews when the researcher found that a person was struggling and was uncomfortable, the researcher would not probe further.

As an integral part of informing participants and gaining their consent the researcher provided information (See Appendix F) to potential participants from a range of backgrounds, which adhered to appropriate reading levels (Mann, 1994). In addition, it covered a description of the research, and a statement indicating the purpose of the study, what was expected of participants as well as its significance and implications. A definition of the theory and new knowledge was not provided, and participants who asked the question were told that it is through their response that the concept can be further defined. Aguinis and Henle (2002) advised that participants must be reminded that they have the right to decline or withdraw from participation during the study without penalty. In addition to following those guidelines, and informing participants before the interview and during the snowballing efforts, the researcher also informed participants that they can withdraw at anytime or can refuse to answer any questions. Participants were informed before the interview began as the researcher described the method of collection and transcription to demonstrate who would have access to the data and that their names would not be associated. They were reassured that a code would be used and that the researcher alone knew the aliases. Participants were then given an opportunity again to ask any questions that they may have. The researcher was cognizant of the organisational environment in that the request to participate in some cases was made by their supervisors.

The right to privacy is fundamental right of the participant (Aguinis and Henle, 2002) as mentioned in the above paragraph, and as such the researcher respected that right when participants indicated during the interview that they would not go further with a particular example because of issues related to confidentiality and security. Privacy is tied to informed consent when participants can make decisions as to whether they will participate in the study based on the type of information that may be requested from them.

The researcher promised confidentiality and anonymity for the exchange of information and ethical codes makes this binding (Bok, 1982). As indicated during the consent stage issues of confidentiality were addressed. There are expectations of confidentiality when the participants may be likely to compromise the privacy of others in some close knit organisations. In this way participants are more likely to cooperate and be open and honest with their answers. The researcher was careful to reflect on her own expectations, participants, HODs and the CEO as well as the organisational environment particularly in the current period of change. Participants were informed about processes to reiterate and

to ensure confidentiality of their interviews which included access to data, and this was restricted to the researcher and her supervisor. Confidentiality was clarified before interviews and in the email sent requesting an interview stating that only the researcher and supervisor and those transcribing would have access. In addition, the researcher ensured and reassured participants that interviews would not be associated with them as the researcher would be the only person who would be able to trace interviews to individuals.

Following the recommendation of Mirvis and Seashore (1979) the researcher defined her role and limitations and requested that the CEO was not aware of the various interviews that were occurring. This was a strategy to circumvent possible participant rights violations such as informed consent, confidentiality, privacy in this organisational context, due largely the view that participation was expected as a part of the job (Harvey, 1994). Despite this, the researcher was cognizant of the pressure on employees participating in the study, particularly since organisations are viewed as systems of coercion (Mirvis and Seashore, 1979). The researcher approached this research process with a “committed-to-participant” approach (Wright and Wright, 1999). The researcher continued the ethical approach throughout the investigation through to reporting of the results. The anonymity of the organisation and the individuals was maintained when submitting partial results for publication and for this investigation.

4.14 ANALYTICAL PROCESSES

Data analysis begins from the first data collection activity (Miles and Huberman, 1994; Yin, 2009). This section will describe the data analysis process where examples are given to demonstrate the initial activities, which are framed by the CR and Abductive approach taken. The section covers both the process of analysis and the findings of this investigation. It also explains the various tactics and strategies used to analyse the data that provide the foundation for the findings. Throughout, the findings related to AC learning processes and power and politics are also given due consideration. These activities intend to meet the challenge extended by Eisenhardt (1989) through her statement “... *published studies generally describe the sites and data collection methods but give little space to discussion of analysis, a huge chasm often separates data from conclusions*” (p. 539).

Miles and Huberman (1984) have provided a strong bridge over that chasm despite observing: *"One cannot ordinarily follow how a researcher got from 3600 pages of field notes to the final conclusions, sprinkled with vivid quotes though they may be."* (p. 16). This investigation intends to move away from this ambiguity to delve into some of the issues experienced during the analysis process. This analysis is based on the framework introduced in Chapter 3 where the elements and processes of AC were introduced and explained. This will be discussed in terms of interactions between individuals and within divisions and between divisions. This in effect addresses the levels of analysis within the AC process as an additional perspective of the construct. To establish the themes derived from the data the following will describe the emerging themes and their interactions in outlining a path of emergence of AC. As mentioned in Chapter 4 on methodology, this investigation employed a grounded analysis (Easterby-Smith et al, 2008c). The researcher followed a familiarization process with constant reflection. Coding followed with simple labelling and categorization. The following section will explain the process of analysis provides the details of the processes which generated the themes of this investigation.

4.14.1 CODING INTERVIEWS

The researcher reread the transcripts while listening to the audio to recreate the interview and atmosphere of the interview. In addition, field notes, observation notes and related occurrences were brought to bear on what was happening during the interview. The researcher reflected on the focus of the study, what the initial suggestions from the data point to and the variety of views and levels expressed by informants. The researcher also reflected on any interactions that may shed a different light on why a particular individual may react in a particular manner. These notions were based on what other informants may have said about a particular issue, in a division for example in terms of knowledge sharing. The researcher employed Nvivo software from QSR International to assist in the processing of data.

Coding was a primary step in data analysis, as it created a path from the individual statements of the informants to more conceptual interpretations of the data collected from the interviews (Charmaz, 2006; Eisenhardt, 1989; Eisenhardt and Graebner, 2007; Miles and Huberman, 1994). Coding was derived from words spoken by informants and conceptual labels were added when similar terms were used. In instances where there was uncertainty in the way in which it was used the code was assigned a similar code but was

given a more specific label to indicate the variation as seen in (See Appendix G and H). The investigation moved “common sense knowledge” of the individuals who work in the organisation to the forefront (Kelle, 1997) as the grounding for the coding process. In the initial stages of analyzing and interpretation, the researcher began with a line by line detailed process of descriptive coding when necessary, essentially using codes to describe what the interviewee was discussing. In addition, when an informant described an idea, the entire paragraph or appropriate sentences were coded.

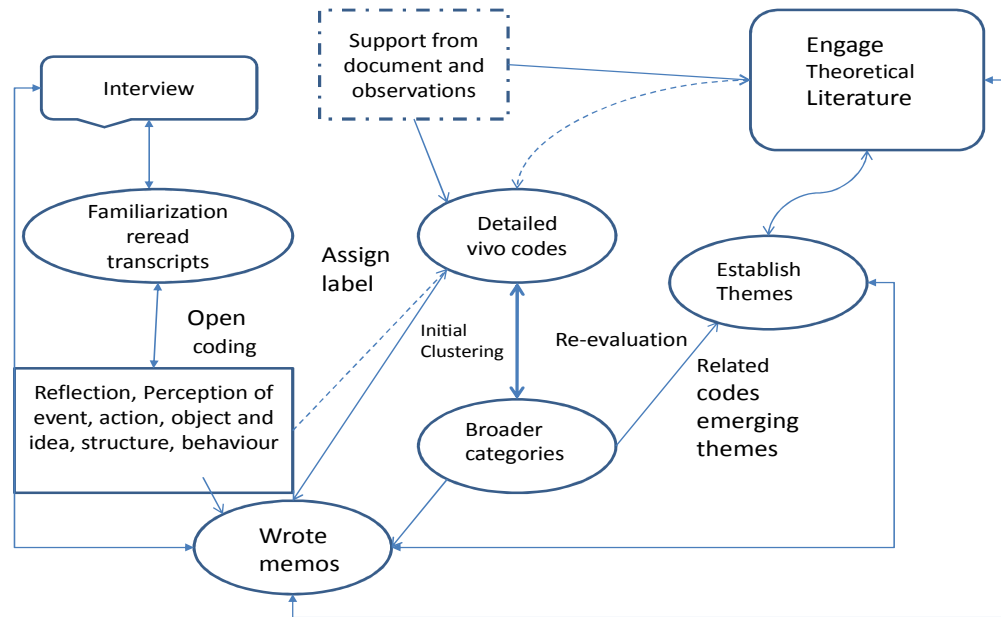


Figure 4 - A general guide to the researcher’s analytical path

This diagram is a summary of the activities that the researcher undertook during the analysis process. The bi-directional arrows represent the iterative process and critical reflection which formed a central component to this investigation. This represents a flow, which was not necessarily procedural, but provides an idea of the processes in which the researcher was engaged, throughout the analytical and writing stages.

These two processes unlocked further opportunities for interpreting the transcripts in new ways that challenged established assumptions. For example, delving deep into the relationships created opportunities to look beyond just interactions, but also the nature of the perceived interactions. In keeping with the grounded analytical approach (Easterby-Smith et al. 2008c) and suggestion of raising “sensitizing questions”, the researcher engaged in some self-reflective questions such as, “why do I believe I see it this way”, “in what other ways can it be different” to assist in making sense of the data and what it might be indicating. Therefore when participants referred to NK, they created points of departure within the data pool to sift through and determine the variation in definitions and meaning. Even further, the researcher also thought of these definitions in terms of

participants who provided definitions and the types of examples that they provided, which was then related to the nature of the work that they engaged in on a daily basis.

The coding categories were developed from “open coding” (Glaser, 1978; Strauss and Corbin, 1990) where the researcher developed the codes from the informants (vivo). The coding paradigm (Strauss and Corbin, 1990) or theoretical codes used were built into the similarities of the conceptual elements of AC. This was combined with knowledge of the researcher informed by prior literature which then informed the foundation for the methodology.

Another building block of this analysis was based on the interpretation of the researcher “make sense of the data”, by building ‘*meaningful patterns of facts*’ (Jorgenson 1989, p. 107) and searching for similar and different constructions in the data. These codes were developed based on what the researcher thought was occurring (Gibbs and Taylor, 2010). Through this process different texts and similarities of texts related to individuals and the examples that they were referring to were categorized. In cases where categories related directly to aspects of the concept, then they were labeled accordingly. The use of new knowledge for instance by informants as “...*something new*” and in other cases “... *new if you may not have remembered it,*” was also categorized. The clustering process gradually developed into a rather abstract activity, referred to as focused or selective coding (Chamaz, 2006). This activity provided the researcher with the option to choose codes based on several lines within the transcript to codes that best described the tone and voice of the informant. This process which begins from open coding supports the verification process and tests the development of initial concepts, as they are applied and modified as coding continues with other transcripts (Eisenhardt and Graebner, 2007; Miles and Huberman, 1994).

In addition, another analytical strategy used was axial coding which Straus and Corbin (1990) define as “*the act of relating categories to subcategories along the lines of their properties and dimensions*”(p. 123). The main purpose of this coding was to strengthen initial interpretations and delve deeper into the structure of the relationships implied by the data to established strategies to discover the complexities. Glaser (1978) cautioned that axial coding can result in a restricted and formalized approach if used too quickly in the analysis process. Consequently, the less formal approach of theoretical coding was also used. Theoretical coding allowed for the linking of sub-categories and categories to establishing links that assisted in making sense of the interviews and their contexts.

In coding the transcripts the most significant issues perceived by the informants were highlighted. A number of codes were linked hierarchically as they shared a number of features, and were clustered, while maintaining the inherent variation gleaned from the vivo codes. These variations established the points of departure that provided an alternative perspective on specific interactions and relationships within the theoretical framework which raised even further queries that challenged the assumptions of the construct in practice. Memos were indispensable in ensuring that many of the ideas and connections, even though initially weak in formation, in some cases proved to be instrumental in eventual development of the themes outline in this study.

4.14.2 MEMOS

Memos formed an intricate part of the coding and theme development process, and were a cornerstone from the very beginning of coding when a particular code triggered a thought or was similar to what another informant said about a particular issue. These initial notes were used to indicate why a particular code was used; however, as the notes grew, a self-reflective inquiry of the entire process developed and comprised many questions while coding. These notes which recorded hunches also guided the direction of coding and in some cases, recoding. One notable value of memos was when a particular example did not quite fit into the assumptions or revealed a particular nuance, which pointed to underlying issues that required additional analysis to be undertaken at a later stage of the analytical process. An example of this was when initial data questioned the sequential processes of AC.

Coding is instrumental in establishing the foundation for analysis as it is a vital link between the collection of data, the modification of theory as well as the connection between empirical reality and the lens of the researcher (Charmaz, 2006). Essentially, the process of coding was able to isolate and reveal underlying, issues and concerns of the informants under investigation. The analytical powers (Strauss and Corbin, 1990) of coding classifications are such that they potentially explain and predict the phenomenon under investigation. Furthermore, in comparing codes, classifications, preliminary findings shape the conceptualizations that integrate with the themes that evolve into part of the modified emerging theory (Eisenhardt, 1989). When coding is then coupled with the theoretical approach provided the grounding for the within case analysis which was also the stepping stone for cross case analysis comparisons. The following section provides an example of the manner in which a code was developed during this investigation. This method is simply one example and should not be the manner in which

each code was developed. However, the idea and main thrust of coding process is described.

4.14.3 EXAMPLE OF CODE DEVELOPMENT – CONTROL

The label **Control** which forms part of reaction to new knowledge (See Table 6) and the theme Emergent and Prescriptive Learning is described in full to demonstrate how the ideas in the categorization of the coding progressed and developed. The code **Control** was developed through the various interviews represented in Figure 5, where a HOD, Val, and other informants from various divisions and at different levels of the organisation refer to the idea of control. Control was interpreted by the researcher based on a number of connecting issues and considerations. Through Val's responses the researcher interpreted other aspects of the interview to indicate that the issue of control and independence was a ticklish issue.

Example – Coding “Control” — within theme Emergent and Prescriptive Learning - Appendix H

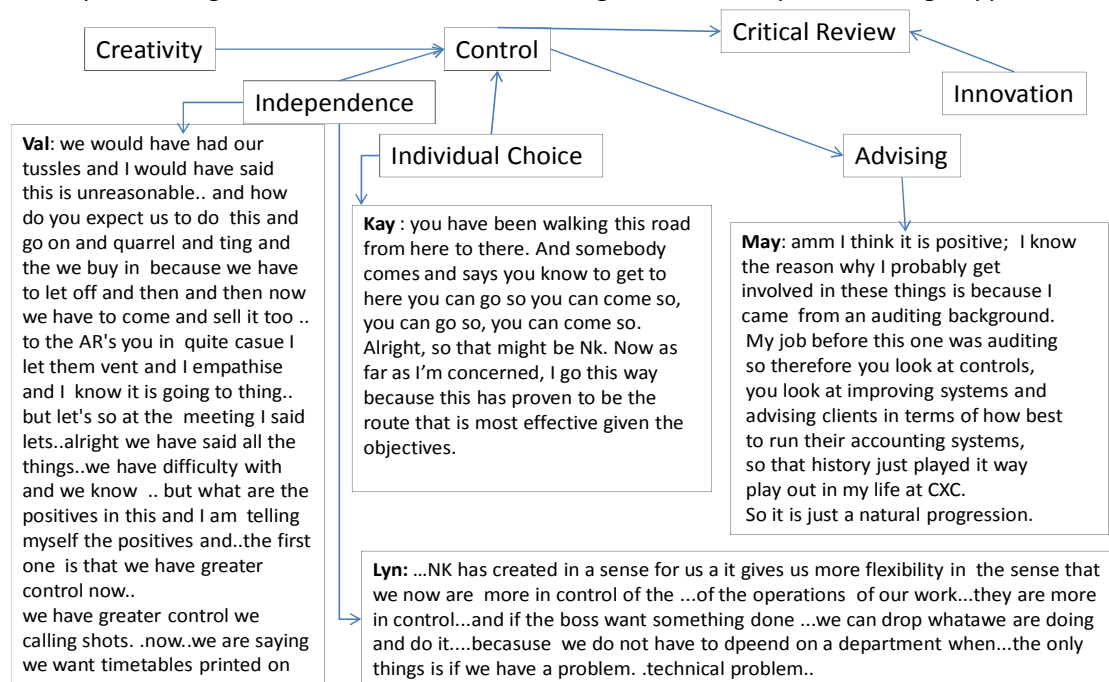


Figure 5 - Example of the development of the code "Control"

This diagram provides an example of the code “control” and shows the conversation selected to represent the various ways individuals spoke about control. It shows the different informants who come from different diffusions and hold positions and responsibilities at different levels of the organisation.

Val redirected her loss of control through her division's relationship with the IS division. She chose to use the control she did have within her division to change the direction of

the response to a more constructive and positive reaction, which she describes in Figure 5. She also infers that the situation could have been lost on both counts. The researcher considered the possible influence that Val held as was a Head of a Division. Also, the dual role she had to play as a senior manager as well as the internal responsibilities of the division formed the basis for the thinking associated to influence at the divisional level. **Control** was seen in two ways because the remainder of the interview indicated a consistent battle for independence for the division, even when it seemed that control was in the hands of ISD. The influence of the IS division was very prominent in the decision making for the changes that EAS had to undergo.

Through familiarization of the interview, the researcher placed Val within her particular context and she was given due consideration. All of this information was linked to some of the statements made by the CEO and changes that were going to happen. He also described instances of clashes with the Head of EAS, and the eventual resolving of contentious issues. Val also indicated that she made sure she voiced her opinion and when she saw the value of the work, she would then back down when necessary. The remainder of the interview shows an actor who appears to support the change process at Aquacon. The challenge is her perception of control. This example shows a number of facets of “control” in action. The researcher reflected on the perception of May for example who was not directly affected by the changes because her position in her division was not affected by the changes in the events that are occurring. However, because FOM controlled the finances of Aquacon, and was an administrative division, the continuity of with regard to the idea of **Control** was maintained.

Considering of these elements when analysing a statement in Figure 5, revealed the ideas of the structure of the organisation, and the changes that Val for example was experiencing. The nature of her division as operational, and the extent to which ICT was transforming how her division operated made her actions a balancing act. In this example Val decided to change what appeared to be issues supporting resistance to change to opportunities for independence – to controlling the independence and participating fully in the transformation process. Her actions circumvented what could have been perceived as a loss of control over her division? Although not a HOD, Lyn also saw the value of flexibility and possibility of control through the transformation. These examples demonstrate complex dimensions in situations of change, but more for opportunities for

innovation. The assumptions of **Control** began with the assumption of rigidity, and inflexibility.

Viewing those experiences from the events described and experienced in the various, positions and histories that these informants have shared displays the complications of developing and examining one code. The initial codes were under simpler labels linked to independence from the individual perspective. Also, the use of “individual choice” referring to control over self, rather than situation, speaks to a nuance in the ideas associated to the code **Control**. This view of Control provided greater flexibility and also linked to broader categories for a more critical review of the situation. The link between control and emergent and prescriptive learning was viewed in line with the broader sub-themes of creativity, innovation and critical review. It is relevant to note that there were many changes in Val’s division because of the position she decided to adopt and to persuade her division likewise. This coding example provides an idea of a sample of issues that the researcher considered during the coding and analysis process.

4.14.4 WITHIN CASE ANALYSIS

Eisenhardt (1989) and others (Eisenhardt and Graebner, 2007; Miles and Huberman, 1994; Yin, 2009) advised that the next step in the process is within case analysis as an additional step in managing this data. This investigation has adopted this approach and developed an analysis of each case (See Appendices I - P). The within case analysis involved clustering data that showed evidence a variety of organisational activities related to knowledge sharing or when informants indicated how they searched for information or knowledge within a particular division (See Table 2 for an example of one case). This step permitted the researcher to become familiar with each case as a standalone (Eisenhardt, 1989).

Western Aquacon Description	
Main themes impressions, summary statements about what is going on in the division	<p>Tends to be behind in the introduction of new knowledge compared to counterparts at HQ , Branch members feel like orphaned child, neglected</p> <p>New ideas developed at branch that may affect the entire organisation are a challenge to integrate</p> <p>On the surface, appears to be very positive knowledge sharing relations, Difficulty for sharing with officers, new officers, appears to be close knit</p> <p>Officers do not consider “new knowledge” – the ideas were there before, but not able to act. (need to check why)</p> <p>Power of CEO to move things along is recognised, CEO has more power than previous CEO</p> <p>The problem of words vs action, at meeting agreements are made changes happen for a few weeks, but is not sustained</p> <p>An aspect of the strategy developed and deployed through that office... appears to be participatory</p> <p>They follow when it comes to technology, but lead when comes to content development – did not follow the same approach as HQ with regard to OC</p> <p>Concern for the process where they begin and other pick up opportunities for their reflection in relation to process a challenges</p> <p>Not all departments know their role in the strategic direction they are finding their way with a focus on cost savings</p> <p>There responsibility is difficult to follow, is not seen emanating from them although organisation wide as it moves</p>
Explanations, speculations, assumptions about what is going on in the division	<p>Many changes happening at the same time, Officers are uncertain about the future, there is fear, they are losing their power base through their role, technology has surpassed them in the new scenario</p> <p>Have a dominant role in the curriculum development, the process is highly participatory, but there may be a communication issue and timeliness of it as well</p>
Alternative explanations, disagreements about what is going on in division	<p>New officers do not feel a part of the group</p> <p>Older officers see new officers as not understanding “how things are done around here”</p> <p>On the surface there appears to be consensus about everything, but actions do not follow suit</p> <p>Isolation from HQ and lack of participation may cause resentment however rules of organisation dictate that they must follow</p>

Table 2 - Within Case Analysis of Western Aquacon (adapted from Miles and Huberman 1994)

This table is an example of an assessment by the researcher to document the collective behaviors within one division. The table is not exhaustive, but aims to capture the main ideas that appear to be most indicative of the collective response from the division.

For example in the exploratory stage, the manner in which a particular individual within a division sought new knowledge and their perception of it to their work processes as well as the changes that were occurring within the organisation provided clues to the interpretation of what was happening. The nature of new knowledge provided additional clues as to the passive or active use and interaction with this new knowledge within and between individuals in divisions and other parts of the organisation. During the transformative stage the process involving the individual within the division and the expressed perception to issues such as reflection, action and interaction is used as evidence. The exploitative stage which occurs more at the divisional and organisational level considers the perception of events in which they interacted and experienced the process as well. This was a valuable exercise as it revealed the unique patterns of each division in relation to AC before considering approaches to generalize theoretically. This process was also a firm grounding for cross case analysis which is the focus of the following section (Eisenhardt, 1989).

The researcher heeded the suggestions from previous researchers who warn of quick conclusions flawed with a variety of biases (Eisenhardt, 1989; Miles and Huberman, 1994; Yin, 2009). As AC is a complex phenomenon and connects with a number of different influences within the organisation, adding a slightly unrelated concept into the collections of concepts throughout coding and theme development inspired different possibilities of viewing the data. For example when coding behaviours from different informants at different levels of the organisation varied, the variation was linked to other possible causes which were not predictable. One activity used to think unpredictably was to include codes within a theme that on the surface did not appear to be related. This action triggered other possibilities of why some codes could be related and in what way, and if not, why not. In addition, the researcher compared the assumptions of some of the questions from the schedule to see the similarities and differences with the way in which elements of AC were defined by division. The underlying assumption of all knowledge being inherently related influenced the conceptualization of codes and development of themes. In the proceeding section, through comparing cases across divisions, the analysis was strengthened by evaluating the AC elements and how it emerges in such a scenario (Eisenhardt, 1989; Miles and Huberman, 1994).

4.14.5 CROSS CASE ANALYSIS

Another tactic suggested by Eisenhardt (1989) was to select levels and categories of employee interaction related to the dimensions of the construct, which was then considered within group similarities coupled with intergroup differences. In this case administrative assistants, officers and heads of divisions were selected to provide another range of groupings based on process work within each division. These groupings were used for further investigation of similarities and differences in perceptions of similar events. This also provided a glimpse into the extent to which individuals participated in the various learning activities occurring in Aquacon. The dimensions were selected based on the coding categories and results of the interaction with new knowledge. The range of different perspectives provided evidence of emergence throughout the levels of the organisation. To discover subtle differences and similarities, and to delve even further into the evidence, the researcher compared two categories at once, and outlined similarities and differences between cases (Eisenhardt, 1989; Miles and Huberman, 1994).

Divisions	Nature NK and reaction	Divisional Role	Divisional Interaction
ISD	Seeking, divesting, Improving, Nature of NK always Interactive when receiving etc... Exploration transformation turnover is very quick (does not necessarily translate to quality)	Seen as Expert, Primary Exploration, IT Secondary Transformation,	Favored for link to new strategy seen as solver of problems Increases workload, changes the level of work, Determines access at all levels due to control of technology Provide support and assistance
EAS	Receiving, Modifying technology and in terms changing processes	Administers exams Reluctant Implementer Involvement is secondary in terms of transforming operations	Seen as division to change Weak in terms of security Insufficient technological solutions Use of IT solutions will increase cost effectiveness
RO	Directing, seeking, receiving, evolving	Directing and monitoring the implementation of strategy	Driver, monitor of all activities to adhere to strategic direction
HR	Receiving, modifying	Promote technology and implement	Enthusiastic about technological change, waiting for direction from IS
WZO	Primary content development, receiving in terms of technology	Promote new strategy, engage in other aspects of strategy – tends to set path	Directing content,
BD	Receiving implementing in terms of technology, innovative behavior, seeking , exploration for new ventures	Promote to outside the potential products and services	Enthusiastic willing to experiment with all aspects of technology
QA	Receiving and modifying technology	Developing standards of operation	Follows direction of IS, more of observer
FOM	Receiving and modifying	Incorporating financial	Just technology – process has

	technology	and management solutions	not changed....(but has incorporated another department and is doing office management when use to doing only finance
EDPD	Receiving and modifying with technology, new knowledge contests content of work	Development and maintain exams IT infused	Reluctant follower Seeks more strategic involvement Competence questioned Value diminished

Table 3 - Example of Cross Case Analysis of reactions to new knowledge

This table provides examples of reactions to new knowledge across divisions. The reactions indicate the way in which the divisions came across new knowledge and when particular divisions dominated access to new knowledge. The link to the division shapes how many individuals perceived new knowledge. In cases where divisions were proactive or leading in seeking new knowledge is common. In cases where divisions receive and are not part of the initial exploratory phase, their response are more reactive. This provides a link between individual, and the divisional and collective view.

Another strategy juxtaposed divisions (Eisenhardt, 1989; Miles and Huberman, 1994), for example cases were divided into two general groups taking into consideration their role within the strategic direction of the organisation (Table 4). A further building block in the analysis was to look for general similarities in groups or divisions cases related to how they viewed new knowledge and the nature of the work that they performed. The nature of the worked they performed related to their need for current knowledge and if their response to it was **passive, active, or primary**. These three terms were used to describe the responses to new knowledge at the divisional level. It is also a description of power influences in relation to new knowledge. In addition the opposite tactic was considering similarities in what appeared to be different pairs of cases for example EAS and ISD. This created an opportunity for comparisons between related responses and new categories such as lead divisions and linked into the theme of power and politics.

Org Processes	Division	Strategic direction	Response Strategic direction
Operational	EAS,	IT/exam administration	Negative response and reluctant implementers
	EDPD	Exam development, IT	
	Business Development	New markets and opportunities for product and service development	
Administrative	HR	IT, HR System	On surface united and constructive support for strategy
	FOM	IT, Finance and Office management Integration	
	QA	Developing Standards	
BOTH	RO	IT, overall strategic direction	Driving the strategy, and new directions
	ISD,	IT	
	WZO	Curriculum development	

Table 4 - Summary of divisions and relationship to new knowledge and responses

This table provides an overview the divisional reactions to the strategic direction of Aquacon. The several organisation processes of the divisions are also outlined in relation to responsibilities related to organisational goals.

These strategies added a deeper level of analysis and understanding for interpretation of the data and related influences. To ensure that the initial findings were substantial, the following provided guidance; *“When a pattern from one data source is corroborated by the evidence from another, the finding is stronger and better grounded”* (Eisenhardt 1989, p. 541). For example, the data showed an inconsistency in what one informant said as opposed to another. To delve deeper in understanding the underlying reasons for these differences of perceptions, other elements within the organisation environment was used to interpret and form an understanding. The following advice was invaluable,

“When evidence conflicts, the researcher can sometimes reconcile the evidence through deeper probing of the meaning of the differences. At other times, this conflict exposes a spurious or random pattern, or biased thinking in the analysis” (Eisenhardt 1989, p.541).

In addition, divisions were also dissected according to similar characteristics (Table 4) to garner an improved sense of the relationship with the elements related to AC processes. This tactic also increased the diversity of lenses on the data as well as accuracy of the data to contributing meaningfully (Eisenhardt, 1989) to the development of AC. As another form of assessing data fit, cross case tactics were utilised, to provide general impressions from the data related to the supporting evidence. From this additional

analysis, themes such as power and politics emerged and as well as training which also raised the ideas of emergent and prescriptive learning.

4.15 RELIABILITY AND VALIDITY ANALYSES

Credibility

In this study of AC credibility was improved by the use a comparison of findings from multiple methods of data collection, specifically semi-structured interviews, and to a lesser extent observation, and documents. Furthermore elements to increased credibility remained with the structure of the sample which allowed for corroboration as well as theoretical cross-case analysis. The theoretical cross case analysis alleviated the concern for issues related to lack of transferability as this is a qualitative study. Merriam (1998) supported this view and argued that qualitative research using a case study is selected to gain greater understanding of the phenomenon in depth. This investigation provides an example of this since the literature had so far indicated an extensive surface overview of the phenomenon. Merriam (1998) and other authors (Lincoln and Guba, 1985; Silverman, 2006) agree that rigor in qualitative research originates from the researcher's overt inclusion and physical presence. These may include the character of the interplay between investigator and informants, the interpretation of perceptions, and rich, thick description. In contrast, experimental designs describe and explain its validity and reliability prior to the investigation. The unpredictability of these synergies provided the basis for theories to be developed. The analysis stems from the array of sources of experiences described.

Dependability

The term reliability finds its roots in quantitative research. Qualitative researchers (Denzin and Lincoln, 2000; Merriam, 1998) consider the term unsuitable when used to describe investigations that are multi-dimensional and in constant flux. Denzin and Lincoln (2000) prefer the term dependability as it highlights that the results are consistent with the data (Merriam, 1998). This investigation has ensured its dependability first in Chapter 2 by declaring in detail the researchers assumptions and view of the world. In Chapter 4, Methodology, the method of selection of the informants was clearly stated. In addition, as mentioned in Chapter 4 cross case analysis strengthened the dependability and credibility of the study. An audit trail (Guba and Lincoln, 1994) was created through copious notes on ideas, thoughts as they developed and evolved.

SUMMARY

This chapter on methodology provided an account of the approach taken to provide further insight for the questions posed by the investigator. The rationale for methodology, a qualitative approach which is substantiated by the dearth in the literature with respect to the theory was explained. This is consistent with the established CR and practiced based epistemological position outlined in the second chapter. The case study strategy was also discussed and positioned within context as an alternative method to reveal deeper and richer aspects to AC.

A structured sample was used to provide an additional dimension to this investigation to provide the skeleton for tracing AC processes through the organisation. The interview schedule and development was detailed outlining the influence of the researcher and the challenges of semi-structured interviews. The Aquacon case was described briefly and research activities explained, as well as the difficulties of implementing data collection activities. Issues of bias were also addressed to ensure that a rigorous attention to this was maintained. The ethical element to this investigation was given careful and constant attention to ensure the comfort and care of informants during and after data collection.

This investigation employed a grounded analytical tendency (Easterby-Smith et al. 2008c) which is linked to the concept of grounded theory (Glaser and Strauss, 1967). This means that the researcher allowed the data to speak for itself although a logical analytical process was maintained. A detailed example of coding was provided to create a link between the vast data and the findings outlined in the next Chapter. Consideration of historical and retrospective accounts was used for the basis of this investigation. This involved constant reflection on the part of the researcher and maintaining close connection to the data. This means that the structure of the analysis emanates from the data, and the findings provides a varied view of what occurred with AC within this particular setting. The analysis will begin with the finding based on the strategies and techniques used and the path to the development of the themes that provide evidence to a deeper understanding of AC.

CHAPTER 5: CASE ANALYSIS AND FINDINGS

5.1 INTRODUCTION

This investigation focuses on the case of Aquacon. To that end, the organisation is described in detail to provide the organisational context on which the themes emerged. The divisions under analysis are given cursory attention with regard to decision making and other organisational features such as human resources, scanning and monitoring of new knowledge and the administration of Aquacon. The divisions that were supported by the technological transformation are also recognized. This is followed by an overview of the themes that indicate the emergence of AC in Aquacon. Each theme is outlined in detail with the examples of subthemes that demonstrate how AC emerges and is affected throughout its flow through the organisation. In Theme 2, Exploratory learning and the influence of the individual is highlighted and analyzed. Subthemes such as triggering of AC, prior related knowledge, information seeking and recognition, with regard to the influence of the individual are addressed. Theme 2, addresses the Assimilated and Transformative learning stages of the AC process. Specific subthemes are highlighted including knowledge quality, sharing, maintaining and activating internal knowledge. The role of reflection and transition between stages with a focus on the divisions is outlined. Theme 3, addresses Exploitative Learning, with attention to the different stages of AC as well as two other forms of learning (Prescriptive and Emergent) and a specific organisation wide event that occurred in Aquacon as part of the new strategic plan. Other influences such as time and power and politics are also observed and evaluated as integral elements to AC processes.

5.2 CASE STUDY

A number of themes emerged from the case study analysis. New knowledge entering Aquacon was in the form of a new strategic vision. The trigger for this strategic vision (See Figure 5) formed the boundaries of this investigation. The exploratory learning phase is investigated from the viewpoint of individuals and their interactions with each other at different levels of the organisation. There is an overlap of this theme into the initial stages of the transformative phases which is the subsequent theme represented with a divisional perspective. Again an overlap is necessary as the third theme is an example of the practical interaction of all three dimensions, with a focus on exploitative learning. The example uses the implementation of the Office Communicator (OC) at Aquacon, in the form of prescriptive and emergent tendencies for this third stage of AC. The theme

allowed for a description of the technological change that occurred through the introduction of a new communications solution and the reaction from that implementation. The actions associated with divisional learning as well as organisational-wide interactions were delineated. The influence of power and politics were woven throughout the various stages as AC emerges in various forms. These three themes highlight the ways in which the three dimensions of AC are intertwined and synergetic.

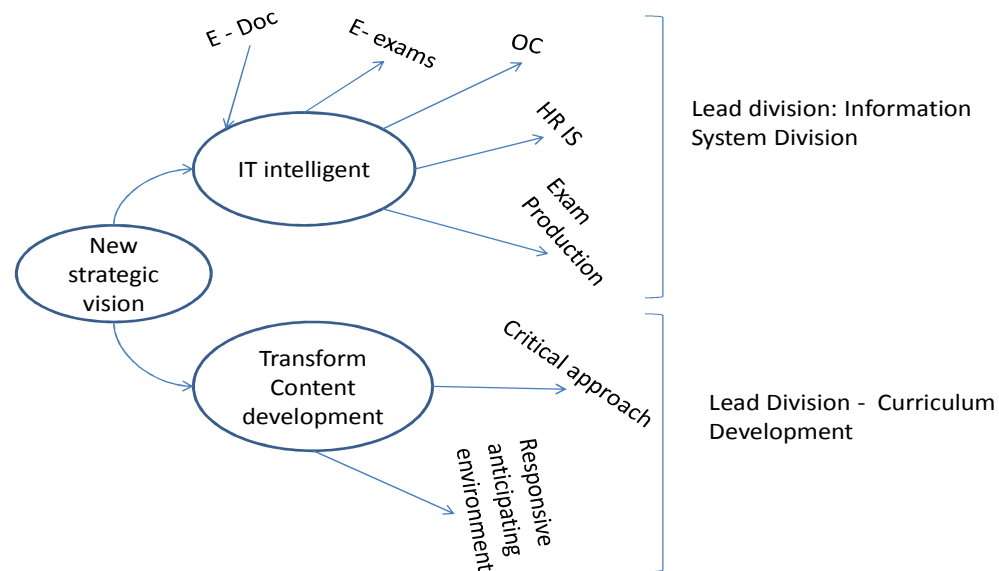


Figure 6 - Summary of new strategic vision and related events affecting processes

The new strategic vision of Aquacon is depicted here at various levels. The first layer from left to right – represents the two main thrusts of the vision, IT intelligence and content development. This diagram extends this vision and details the various organisational divisions that are affected by the new strategy. The actual divisions with lead responsibilities related to the new strategic vision are also outlined.

5.2.1 BACKGROUND TO THE CASE OF AQUACON

Aquacon is a regional Caribbean organisation that provides educational products and services for 20 developing countries. New external knowledge triggered a number of events that affected the internal operations and functions of Aquacon. The Board of Directors wanted a change in the direction of Aquacon. They recruited a CEO, with a background in change management, capable of bringing about this change. This CEO brought in new strategic directions and held more autonomy than previous CEO's. With a new CEO taking up the reins in 2008, Aquacon became engaged in a transformation that was geared toward building an organisation capable of competing internationally. The strategic vision was based on an interpretation of the CEO's sense of the external

environment and the perceived need required ensuring that Aquacon responded competitively, with perceived international uncertainties. The strategic visions consisted of three major components; an IT infused intelligent organisation; critical transformation of content to reflect the current societal and future needs. This must be achieved within a cost-effective operational climate. To put this transformation in context a deeper understanding of Aquacon is required.

Aquacon has been in operation for over 30 years. It has worked under a Board of Directors, made up high ranking civil servants of the countries that it services. Aquacon is accountable to these individuals. Through the representative countries, Aquacon receives a percentage of its budget. The remainder is accrued through payment from clients of products and services. Traditionally, Aquacon has been operating with public sector structures. Increasingly, these structures have been replaced with private sector operational processes while maintaining core public sector structures. For example Aquacon is not expected to make a profit, but simply to break even, while simultaneously increasing the quality of the services and products of Aquacon. The decrease in response time to addressing problems and resolving them are also a major goal of the strategic changes at Aquacon. The face of Aquacon should reflect the current state of events, to be able to compete with the industry. The style of decision making is traditional which is consistent with the public sector environment. The processes of the organisation follow strict rules and guidelines that are sometimes inflexible. Any form of deviation maybe detrimental to the product delivery in terms of time and quality. When to enact change and how is very critical, so management of events that may bring about change is very important.

Gatekeepers, boundary spanners in Aquacon, tend to be heads of divisions who translate the information and knowledge based on the manner in which Aquacon intends to use the information and knowledge. The CEO is also a boundary spanner, as well as some well-placed individuals within specific divisions. With technology easily available controlling NK entering Aquacon is challenging. However, NK that may affect individuals within the organisation, and information and knowledge that are related to divisions may require control. Timely and strategic dissemination of information and knowledge and the role that boundary spanners play, facilitates the translation of NK; however their perception of this NK may not always be trusted. The general makeup of the human resources is divided into the professional and non-professional staff. The human resources of

Aquacon are made up of experts with post graduate level education; this is a requirement of the job. There is a rift between two main groups. There has been a perceived change in the focus of professional educators to IT professionals are more prominent group in determining the direction of Aquacon.

The Board of Directors wanted to move Aquacon into the 21st Century. This required a more private sector type of management with increased autonomy to the CEO. There are no major competitors to Aquacon; however, their challenges are to ensure that they keep up with the changes that are occurring worldwide in order to remain relevant. Their niche market although solid, however, the challenge is meeting the needs of a diverse region and also managing the interests of numerous governments. Aquacon finds its strength in the collaborative efforts of it processes external to its administrative functions. Its weakness lies in its inflexibility within the organisation and the effective integration of administrative and operational functions.

To address these weaknesses, Aquacon restructured by developing three main strategic areas of functionality namely Corporate, Evaluation and Business services. As this was a new configuration, within this framework, this investigation recognizes nine (9) divisions within Aquacon. This facilitates a view of operational and administrative functions of Aquacon. The objectives of the business development division, is to leverage Aquacon's intellectual property rights and develop new products and services, as well as fundraising. In addition, this division leads on the nature of strategic planning, business development and marketing. The operations of the Business development unit was being defined when data was collected for this study. The exact nature of its operation was to be determined by the head as Aquacon delved deeper into this new territory.

The responsibility for administering assessments and ensuring the security of those assessments lies with EAS. Specifically, EAS manages the delivery of manuscripts and other assessment materials, data entry, processing and release of results. In addition, EAS organizes the sampling and processing of practical assessments which is an integral component of the evaluation. EDPD is another division that holds the responsibility for the development of all Aquacon. The functions of this division involves a variety of tasks including pre-testing items, setting and editing manuscripts, item analysis, preparation of technical and school reports and grading. The Division also facilitates

syllabus development and provides technical assistance on measurement and evaluation to Ministries of Education and other institutions.

FOM manages the Finance and Office Management and the key responsibility is to manage the financial affairs and the office accommodation needs of Aquacon. In particular, FOM manages the budget preparation, controls expenditure, and all financial matters. They also manage office space, equipment and other related administrative functions. The human resource division manages staff development and associated matters, which includes staff planning, job evaluation and descriptions, compensation, employee relations, health and safety, wages and benefits, recruitment and orientation, leave of absences, separations and terminations.

The Information systems division manages all technological requirements of Aquacon. They provide technical support for the processing of manuscripts and also generate statistical reports on request from member countries. ISD is a major player in the technological transformation of Aquacon and leads the other divisions in that regard. The quality assurance division is a major consideration in the strategic direction to define Aquacon as an internationally competitive organisation. As such this division also serves as an internal auditor of all processes and products of Aquacon. The Syllabus and Curriculum Development division engages in a highly collaborative process with various representatives from member countries for syllabus development. The office of the CEO consists of the executive arm of Aquacon as well as the public and marketing functions. The information and records management department also reports to the CEO.

These divisions were all affected by the technological transformation of Aquacon. In a nutshell, the strategic vision generated ideas on becoming an “IT intelligent organisation”. The main vehicle was the introduction of a variety of IT tools throughout the organisation. Another major strategy was rethinking the core content of the product and services that the organisation developed making it more relevant and suited for the 21st Century. Most significantly, these goals needed to be achieved in a more cost effective environment. The first phase of this new strategy intended to respond to the current economic climate and ensure that standards specific to the products from Aquacon developed global currency. To achieve this strategic vision technology played a central and critical role. In particular, the strategy utilised ICT to modernise the operations of the

organisation internally and externally to reduce on operational cost while simultaneously developing competitive advantage opportunities. The strategy proposed that using an ICT solution for all communication and major processes would reduce overall organisational costs.

5.2.2 EMERGENT ABSORPTIVE CAPACITY

Three major themes emerged from this study which is framed within the dimensions of AC, exploratory, assimilated/transformative and exploitative learning, as well as sub-themes that address the complexity of AC. The investigation assumes that the new strategy operated metaphorically as new knowledge. Through the use of this metaphor, the underlying issues influencing AC processes in Aquacon may be revealed. It also serves as a point of departure to provide a constant link to indicate a point of reference in view of the changes that may occur during the AC process. This approach is also consistent with the underlying premise of emergence. In so doing the relationship between elements of each dimension is augmented by sub-themes. These are viewed through levels of analysis (between individuals, within divisions, and between divisions) to understand the emergence of AC through the organisation. For purposes of consistency, the dimensions of AC are maintained so that delving deeper into a further understanding is suitably framed. The issue of power and politics permeates throughout the findings which are tied to the design of the study. The hierarchical structure of the sample addressed the underlying structures where an inherent power and political base was exercised as new knowledge moves between individual and divisions. This is threaded through the interactions between individuals throughout the AC dimensions and explained in practical terms.

The first theme is detailed within the exploratory learning dimension, and also addresses issues relating to preliminary activities and elements such as triggers of AC processes as well as prior related knowledge. These antecedents form a basis for this theme. The individual influence, the position as well as the role and responsibility of the actor is evaluated as the new strategy (new knowledge) enters the organisation. The analysis employs an overlapping feature throughout the findings to demonstrate the connectedness of knowledge as seen through the individual and divisional levels of analysis. The movement of new knowledge is explained in terms of individual interaction through various levels of the organisation as well as dimensions of AC process. Specifically, the analysis is framed by the individual and the relationship with the triggering of AC

processes; prior related knowledge and the manner in which information seeking occurs; and the recognition and value of new knowledge. This thread is maintained in the analysis of the influence of time.

The influence of exploratory learning continued into the assimilation and transformative phase explained from within the division. The individual influence is maintained, although the divisional influence are the primary focus. The sub themes address the role of the division through the assimilation and transformation process and touches on exploratory influences as well. The influence of the quality of knowledge for assimilation is evaluated and effects of power and politics are given attention. Another sub theme addressed the assumption of maintaining and activating new knowledge as well as the influences of the individual and knowledge characteristics such as prior related knowledge. The approaches to knowledge sharing which underpins these activities are also outlined. The reflection debate is addressed at both the individual and divisional levels, with the issue of time maintaining an influence. The influence of power and politics in this dimension as well as effects from AC phases is also assessed. The connectedness of the dimensions are analysed through practical examples from the investigation.

Exploitative learning was analysed using the concepts of emergent and prescriptive learning in order to provide a more practical targeted theme. This theme considers AC within another form of learning and assesses the ways in which forms of learning interact. AC learning dimensions are seen progressively when the organisation is developing an approach to new knowledge. Emergent and prescriptive learning were constructive when a particular solution has been selected and the approaches within that activity are assessed in relation to the entire organisation. Emergent and prescriptive learning are derived from or are influenced by other and broader forms of learning which within this investigation encompasses the AC learning dimensions.

To develop the link between the themes the analysis concentrated on particular elements as indicated above so that there were opportunities for evidence of AC emergence, as well as related power and political influences. Consistent with the previous chapters the progression of this section is defined by looking at new external knowledge and individual interactions, and how it is defined by the informants. Behaviours significant to the nature of new knowledge and how it enters the organisation and subsequently

emerges is the focus of this investigation. Examples of emergence are found in the manner in which informants react to new knowledge.

Consistent with the grounded analysis and the CR approach, the response to new knowledge was viewed in light of relationships with other individuals related to particular events. In addition, the scope of the event as well as the organisational structures (rules and regulations that individuals adhere to) that preserve order and facilitate processes were also considered. The movement of new knowledge in relation to the hierarchical structure which are depicted by the roles and responsibilities of individuals and how they use it is important as it takes into account how the structure of the organisation affects the emergence of AC. In particular, the way in which new knowledge enters from the top and percolates and affects individuals at different levels of the organisations also influences emergence. The conditions under which these interactions occur and assist in the analysis and interpretation of the data form an additional aspect to this analysis. The following outlines the analytical path taken to develop the above mentioned themes.

As mentioned above, the themes outlined in the following sections discuss the major factors influencing the AC process. These three themes were forged with attention to the underlying organisational structures represented through the sample structure design of the hierarchical relationships in the organisation. The interdependent relationships between divisions to maintain the products and services of the organisations were also a factor. Therefore, the role of the individual in the process, and the divisional responsibilities that are juggled to resemble a cohesive plan that moved new knowledge through the organisational structure, effecting learning and change was perceived through various viewpoints.

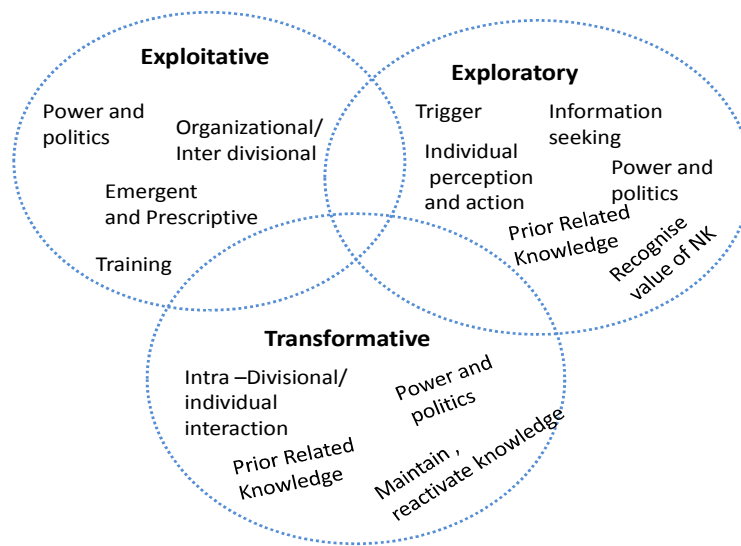


Figure 7 - AC elements and related factor that formed the basis of themes

Each main theme outlined is also defined by subthemes. In this diagram the subthemes are clustered to show the variations as the similarities of the subthemes that overlap as the investigation focuses at different levels of the organisation as well as the stages of AC.

The divisional level considers the notion that divisions are unaware of deeper implications of their interdependence. The AC theoretical relationships are highlighted and the related themes were constructed to demonstrate and discover the underpinnings associated with AC process.

5.3.1 TRIGGERING AC AND ROLE OF INDIVIDUAL ACTORS

From an AC view point, the trigger was personified by Ken, the CEO as he drew from a number of sources including his prior experience to develop the strategic vision that had directed the influx of new knowledge entering Aquacon. He stated, “...*the whole strategic repositioning of Aquacon ... value for money. Are Governments getting from their investments in this enterprise and we are looking at that in terms of output ...*” (12). These sources included the current economic climate in the region, the dissatisfaction with input in education and results as well as the general management of Aquacon. He developed two main strategic directions, within this “*social sector organisation*” (12), the view of education and the use of technology that the region would prepare citizens for ensuring development and participation in the future global economy. These two main thrusts of the strategy evolved into major events which entered as organisation wide technological changes. In addition, critical thinking ideas enhanced the curriculum which was the foundation for major organisational products.

Individual/ Representative	Perception of NK	Action – associated with NK of influence also link to PRK	Reaction Result/response of influential interaction
Senior Management	<p>“... <i>does not have to be earth shattering...</i>” (Ken)</p> <p>Interpretation: <i>a number of PRK factors heavily, opens up negotiations</i></p> <p>Influences on direction setting processes - Strategic vision, new technology options, benchmarking,</p>	<p><i>Related to PRK – private sector experience past Aquacon council member, past regional representative,</i></p> <p>Interpretation- <i>association with council linked to authority, monitoring, control, time</i></p>	<p>Use of a mixture of strategies from persuasion to assertiveness</p> <p>Contradiction – very aware of own method of dealing NK does not translate into how dealing with staff</p> <p>Does not consider the PRK of others and how it affects the timing of implementation and effect...</p>
Heads of divisions	<p>Quotation: “... <i>application of technology or a new application of technology...</i>” (Guy)</p> <p>Val: “<i>need to know basis</i>”</p> <p>Jim – “<i>things will not change</i>”</p> <p>Interpretation:</p> <p>Directing/primary division - Emerging implementation, exploratory in terms of</p>	<p>IT and IS, technology, process reengineering,</p> <p>Control and authority through responsibility of IS – permeates throughout organisation has “say” over the direction and development of all processes etc...</p> <p>IS – owns processes because they are IT</p> <p>Interpretation; implementation,</p>	<p>Use of authoritative methods, heavy training,</p> <p>Use of PRK to guide solutions</p> <p>IS staff not trained to teach....</p> <p>IS goes through their own transformation and exploratory as well....not sequential</p>

	technology,		
Officers	Nothing new... have suggested before... management not listening... Responding secondary operation division – officer, links with Linking of prior experiences ... org memory....	NK is not new, internal PRK entrenched, PRK through organisation suggested some of the changes, involved in IT, curriculum development,	“go through the motions” Use of “go slow method” lack of understanding of needs of staff not consulted feeling of incompetence when prior practices did not facilitate training
Administrative Assistants	Responding at user level, <i>just know what I am suppose to do.. go to training so I go...</i> Hearing through the grapevine better and faster than email and from head of division	Lack of trust, follow direction in terms of required training, Wait for new CEO’s time to be over...	Critically reviews grapevine information and knowledge Play a waiting game.. enough to appear to productive

Table 5 - Summary of Influential individuals representing group levels

This table provides a group level perception irrespective of divisions. This also represents the other views of individuals within levels of the organisation who participate and influence AC process.

The CEO with the support of the Board triggered the change and facilitated the learning process. The scope of the investigation extends to the trigger entering Aquacon, with an awareness of the support from the Board. Structurally, the initial phase of exploratory learning where the strategic vision of Aquacon was conceptualized remained within the purview of the CEO. He relied on his prior experience in the public and private sector as well as the notion that technology can “*bring Aquacon into the 21st Century*”. The global, regional, social and economic occurrences outlined in Chapter One were also major factors as the strategy needed to respond to current challenges. Although the trigger for AC appears to begin from the top of the organisation, to gauge how AC emerges, the events began from the other end of the organisational spectrum and was interspersed with a myriad of individual reactions to the new knowledge from various levels within. Learning at this level is more specific to the individual, with direct links to exploratory learning that affects the entire organisation. From this example the CEO as an individual

also represents the official organisational view. However, this learning which affects personal levels devised for organisation-wide consumption is also an element of AC processes since it relates to the new strategy which triggered the process.

Perceptions of new knowledge gave clues as to how individuals said that they responded to the new strategy. Individual reactions provided a glimpse of the tension between formal roles that they play out and their thoughts on new knowledge and how it can be used. This tension also affects the perception of responsibilities and affects how and why individuals share. We consider then their perception of new knowledge and then how they decide to share or not. In responding to the strategy outlined the role of the head of division was based on the previous experience of that particular head. Officers as well as support staff also interacted with the new knowledge entering Aquacon, from different perspectives. The CEO wants the integration of the new strategy to succeed.

In responding to the trigger heads of divisions, expressed mixed views about the potential changes, but were limited to a predetermined vision (See Table 5). Reference is made often to prior experience with other individuals about changes and some indicate that things remain the same while others say things have opened up more since the new CEO arrived. The fear of change challenged entrenched ways of operating, although in principle new knowledge was something to look forward to. The new strategy was a catalyst for a number of organisational issues. For example the use of power was evident at various levels of Aquacon, as was seen by the introduction of the new strategy. Individuals did not view this new strategy as organisational. From their perspective new knowledge can only be organisational when staff members participated in the early stages of the process. For most staff members the new strategy appeared to be imposed from above. Informants made reference to “the departure” of a head of division, which created a number of insecurities for many employees as the message sent was that “no one’s job was safe”.

There are examples of both systemic and episodic forms of power. There is a simultaneous use of individual power related to personal interests. Can the personal and positional interests of the CEO be separated? The systemic form appears to prevail as the hierarchical structure binds other individuals at the lower levels of analysis, and restricts responses to the new knowledge that represents the organisational view. In this case and based on the above example, the individual view of the CEO may become the organisational view for the time being until the new knowledge is interpreted within divisions.

5.3.2 PRIOR RELATED KNOWLEDGE, EXPERIENCE OF INTERACTION

The CEO was influenced by his past experience, in a number of ways, and as such his interaction with the organisation was evident with the introduction of new strategic vision. The perception that new knowledge is not “*earth shattering*” infers a gradual process and points to the need for persuasion and promotion of new knowledge in whatever form. The way in which the CEO sought new knowledge, which included critical approaches and the use of benchmarking, coupled with the position and role of CEO, produced a convincing plan to transform Aquacon. The reaction to the new strategy was significant, which was recognised and communicated as paramount to the change process. From the onset Ken describes his individual reaction to potential new knowledge as it enters the organisation:

“...implicit in listening to those outside voices is a kind of benchmarking ...you hearing what the cutting edge is you are trying to adapt or assess what it is ... you kind of also have to assess where you are in relation to those things ... how helpful these measures may be to you...or if they are not whether you are in fact ahead of that curve ... if you fall short of the benchmark, then there are opportunities for incorporating lessons to take on what you do and how you do it. If you are already ahead, it still helps because it gives you a confirmation that what you are doing is on the right track.” (12)

The CEO is indicating his own perspective of how new knowledge is critically reviewed before use in Aquacon. This statement provides a snapshot of the intended critical approach to the exposure to new knowledge on a personal level. This perception does not extend to the rest of the organisation and this is the challenge for AC processes, when individuals and organisation processes interact. The promotion of the strategy to address for instance, “*listening from the outside*”, however, raised the question of listening from the inside. The response from officers and administrative assistants was that the collective “*they*” did not listen, while others acknowledge that it has improved since the arrival of the incumbent CEO. This is a major issue for staff members who think that their ideas are overlooked, for external ideas that prove to be on par of lower value than theirs. This raised questions about the acceptance of the new strategy in whatever form that it reached staff members at various levels within divisions.

Individual perceived reaction to NK - vivo Codes	Clustered Focused Codes	Influence on NK
Excited at NK, Embrace NK, NK thrust on you, Control , trust, not believe, helpful,	Reaction to NK, positive reaction, negative reaction, sharing NK,	Examples of

hesitant to do things differently, danced all around it, hold your tongue if other person is involved, understand what other people are doing,	discussing, meetings,	the thoughts that guided actions
Actively pursuing NK, harass for NK, was not doing it before, but need to now,	Seeking NK, discovering NK,	Change towards NK in relation to the strategy
Usefulness, recognition of value, Reuse of internal NK, make job more difficult, not needed anymore, always need, Benefits of NK, Work quality	Value, Extent of need NK, improvement, modification,	Quality of NK does not influence action, depends on where it comes from
New Technology, podcast, Internet, Google, Journals, discussion, reading, research conferences, workshops, sharing with colleagues, syllabus,	content, technology, interactive, training, skill, expertise	Forms of NK
They do not ask us, I know I am not suppose to share,	NK coming from the bottom, not knowing, not informed, steal recognition,	Reaction to lack of involvement related to NK
informed to a point, introduced too late, need to know basis,	Informed, Speed, Time,	Negotiating and use of power
Remember, treatment of NK before, recognise contribution,	Indication of lack of understanding of what is happening internally	Compromises power base

Table 6 - Summary Individual perception of and reaction to new knowledge

This table delves into the reactions to new knowledge and the related codes developed. Codes of individual informants and their reactions to new knowledge were detailed in this table to show the variety of reactions at the initial exposure to new knowledge. Also, this table shows these codes into clustered format to illustrate the complexity to the coding process.

A communication of the strategy was widespread throughout the organisation and regional stakeholders as well as on the Internet, ensuring that staff members were aware of the new strategy and its importance. At the retreat, there was little disagreement with the state of the organisation and what needed to be done. The approaches to how to adapt, methods of evaluation as well as results of those assessments were issues that contributed to tensions. The view of the employee in evaluating the state of the organisation as explained here by one officer who perceived things differently,

we realize now that we are far behind ... to move where they want to move. ... they seem to blame the employees, um for that. But if you got people stretch out morning, noon and night... (25)

This provides insight into the complexity of the environment in which the CEO intends to integrate this new strategy. To garner support, the CEO intended to involve staff to develop ideas for improving the established strategy. These ideas may be modified due to interpretation and disagreement as they emerge through the organisation. Some staff members have already indicated that participation in the development of the strategy should have occurred earlier in the process. The state of adaptation processes are dependent on the history of the organisation and are important in understanding prior knowledge of Aquacon. A HOD, Guy (42) indicated that the structure required to support the strategic vision was not in place. The difficulty is to create an environment to facilitate the absorption of new knowledge relevant to achieving the strategic vision that responds to the educational needs and changes in the region.

Another focus of the strategy is cost effectiveness which according to the strategic vision can be achieved through the implementation of appropriate technology as posited by the CEO, “...the technology does allow us to get ahead of the curve... the potential for that is enormous... in preserving our integrity ... also more efficient processes.....” (12). The contribution from staff members in the process is evident as well as the expectations of the methods required to solve a problem or to meet the requirements of the strategic vision,

“I may have ideas as CEO...but I cannot solve a problem in Exams division ...unless the person who is engaged with the problem...really thinks critically about it and comes up with their own ideas...you experiencing the problem on a daily basis ... you feel the frustrations...you must have a solution..it is your obligation to help find a solution. (12)

The expectations appear to be reasonable on the part of the CEO, however, the reaction from an officer was “... they expect you to come with all the skills...” (25). This reaction rekindles influence of the history of the organisation and the extent to which the strategy must incorporate it into the strategic vision. From an AC standpoint, problems and frustrations embody much of the organisational history. Again, what is required does not seem to be the problem; rather, how each party is to fulfil the function appears to obscure the bigger issue of how to manage new knowledge and the subsequent problems that develop because of those changes.

The issue of the organisational history and individuals’ past experiences within the

organisation can reinforce a position that creates a tension for the absorption of new knowledge. This historical knowledge surfaces and reveals additional contention which is instrumental in developing conflict. That knowledge takes on the previous experiences of those working there and interacts with previous experiences of new individuals. This is expressed by Guy who argues,

....When the average stay here is 20 years ... and most of these people have existed in a context where your role is to lift up paper and put it there ... don't come and tell me that it is easier to move a bale of paper...because the cost of mobilization has changed and you suddenly decide it is ok to think freely and to come up with some ideas... (42)

The metaphor here is striking, the question of “how” is the key to the change and although on the surface the physical is emphasized the real battle is below the surface. The real issue is in what way is it most economical to move the bale of paper? The question from the top does not ask “how do you think you can move the bale of paper?” Technology was the answer, and the type of technology was also supplied. The point raised “...they think we are robots...” is most apt from an assistant’s point of view.

From another perspective at lower level within the organisation, the influence of new knowledge and prior related knowledge is based firmly in the previous responses from management, irrespective of new CEO. Ira shares his thoughts,

...New knowledge... I consider it new ways of doing things. It may not be new to out there but to the worker itself may be new ways of doing things, more efficient ways of doing things, all that is new knowledge....and how you acquire it.....communication,new knowledge will be understanding how other people do things.... interact with people....(25)

There is a subtle message inferring that new knowledge is about understanding how other people do things. There appears to be a contradiction in how management perceives new knowledge and how they then act based on it and how they react and interact with new knowledge and with others at various levels of the organisation. The filtering effect of the strategy mimics the Chinese whisper, game, where the CEO is dependent on the adaptation of the strategy for each division. Is AC dependent on how each division adapts it? How it is adapted in each division may be a factor for organisational level AC. This will be discussed more thoroughly in the following themes. Many people see events from their perspective as recounted here, “.... A lot of people see things from their desk. ...if you understand what I mean.”(25). This adds to the dimension of the above

expectation and contradiction, where a CEO, expects officers to see a problem and deal with it critically which defines interaction associated with AC.

The ability to see beyond one's responsibility is a type of knowledge that links the various processes and show an understanding of what another individual is doing and how that supports the flow of new knowledge. This provides an additional opportunity linking operations in one direction with another which streamlines the process. For example the examinations divisions is directed by the IS division to improve on processes and operations owned and in closer proximity to the exams division. Working and learning in a unit requires an understanding of how other people work so one knows how an individual's work affects the other individual or division. This also affects the decision to share or not to share, where self-interest and individual competition were given as a reason not to share. In making a decision to share or not to share, ideally, one assumes that a person may need the information to be shared. There is an assumption that the individual initiating sharing perceives a need of the potential receiver. The following section delves into that notion that underpins the rationale for sharing. Prior related knowledge appears to be closely linked with recognizing the value of new knowledge and factors in the abovementioned elements of AC.

5.3.3 INFORMATION SEEKING AND RECOGNIZING THE VALUE

To respond to new knowledge entering the organisation, individuals seek new knowledge for a variety of reasons (See Table 6). Seeking new knowledge in response to the new strategy was exercised in different ways and for different underlying reasons. One office assistant embraced the new opportunity to use new IT solution for document management and experimented on her own. She stated that she was just interested and curious, and she liked a challenge. A technical officer indicated his proactive methods of searching for new possibilities to assist in solving some problems. Another officer stated that although at first she was reluctant to participate, she slowly began to see the value of the technology and wanted to change her work processes even more. These varied reactions indicate that a spark must be present for the absorption to occur. This spark may happen immediately or is delayed. However, it is necessary to increase the possibility of effective change or innovation.

The jostling of new knowledge between individuals, groups and division, reveals the unpredictable nature of knowledge sharing required for learning. Therefore the power and political nature of knowledge sharing is evident in the examples from the CEO

through to the varying levels of the organisation. The movement of knowledge through sharing from bottom-up was a problem as stated by Ken, the CEO. Many respondents indicated that they shared, but they shared for a particular reason or that an incident or change restricted their ability to share. The CEO offers a thought on knowledge sharing,

“...the issues were just insufficient sharing ...on a formal level the structures exist for that sharing ...and people go through the motions.... more of a formal thing they never go into the level of the depth that is required....so that the niggling practical issues are not addressed...” (12)

There appears to be consensus about knowledge sharing activity. When knowledge sharing does happen Ira provides an example, he explained,

“Well you share. First you bounce it off of colleagues. Um, to see if they think it could work... Tell somebody to look at this article and things like that. You bounce it off of your friends, you know at work....” (25)

At the organisational level the CEO offers his experience of not being informed,

“...there was a tendency to hide a lot of stuff from me and I made it clear to people that the worst thing you can do is hide information from me ... I am supposed to be the first one to know about anything that is going wrong...inside of here...” (12)

Deb, the head of a division argues, *“...the message has not gotten through ... communication not achieved...” (55)*. Ira (25) concurs and adds that communication has always been an issue. The office communicator (OC) has been touted as the technological solution, and assistants and officers alike repeated that this would be the solution for challenges of communication. On the surface this IT solution for communication, although utilized has not solved the underlying problem for greater involvement in a timely information flow. It appears to address the formal processes of communication, which is ‘need to know’. According to Sue (27) an Administrative Assistant, the ‘grapevine’ is a more trusted source of information and knowledge, where she determines in general that it is a more reliable source than formal communication. Timing of access to knowledge is another factor. She elaborates,

”lol... grapevine I think we all know that ... that is very popular, and later on you would get it out of a divisional meeting but most of the time it would come through the grapevine... I think we are trying to change that ...by using the email more often but as I am telling you grapevine works

faster ...LOL...before it comes out of the email officially...grapevine has it..” (27)

Sue also indicates that the information from the grapevine is reviewed critically. This involves checking who is relaying the information and where it originated. There is a greater inclination to believe this source, as in the past it has proven to be more reliable than the formal responses she has received. Also this indicates that the technology does not address the underlying issues of communication. The underlying factors of the individual functioning and interacting within a hierarchical structure determines, what, how, where, when, why information and knowledge is communicated from certain perspectives within the Aquacon. In the same vein, it also determines the way in which another individual may be influenced by informal learning occurring simultaneously that compromises the formal activities for official or legitimate learning processes. The assumption, by managers that the officers and administrative assistants will wait for information and knowledge when they deem ‘it needs knowing’ is a mistaken supposition. Trust and accessibility appear to be paramount in determining the quality of the information or knowledge. An officer clarifies and puts the sharing in context by underlying the issues related to sharing,

As you get older you get wiser because sometimes you are share new knowledge and (pause) people get annoyed with you because you sharing something that they don't know about, ... Sometimes you share new knowledge and people use it and take the credit for it. ...I realize new knowledge is a precious thing... So you get careful. I'm sure you notice that people share new knowledge only when it will become advantageous to them. It is the same in here. (25)

In the curriculum development unit, another officer provides an additional factor,

... Whatever NK that we have ... we have meetings among ourselves, So when anything comes up we tend to share. Well, well, anyway. Some politics I find that it use to happen more frequently in the past but for the past maybe two years or so there's some breakdown. I mean you share, but the way that we used to share before, is not the same.... because I suppose new people coming into the organisation and people see things differently and whatever so. (2)

Does one share only when there is a guarantee of consensus? Another officer from another division confirms thoughts on what would make her decide not to share,

...I suppose my own understanding of what their portfolios against what or what are the issues that they have to deal with. In addition to that there are

opportunities that exist for if the information is relevant get it. so I might not give it to you in that direct way. Cos' I have already made a judgment that it might not be useful to you. But you might certainly see it in my work, so there is still a possibility that it can still be transferred at another point in time. It's just immediately, you know, it is really a judgment call.
(10)

The focus seems to be on monitoring and controlling. This is also seen in other solutions, which for cost-saving purposes the CEO added another technological solution. He explains, " ... *we have put in the geo-tagging devices on our vehicles, cause I was told that our buses would be all over the place*" (12). By not sharing and not being aware of the information and knowledge needs of others the employees frustrate the movement of knowledge within the organisation and this is endemic, which as the CEO stated is a major challenge. In recognizing the value of new knowledge there appears to be a myriad of reasons for sharing that allow for the interaction of individuals and the potential knowledge that they might share. This sharing appears to be framed rigidly and shows very little flexibility and openness. Despite sharing, the decision to share tends to be in a familiar and favourable atmosphere leaving little opportunity for critical review.

5.3.4 "TIME" AND "ASSIMILATION" AS MAJOR FACTORS IN AC

Time was a fundamental issue echoed throughout the organisation as enunciated here by the CEO, "...*the economic situation is deteriorating faster than we anticipated...and that has happened from the time we enunciated the new direction*" (12). From the perspective of the CEO, time is critical within the exploratory and the transformative stage. The participation of staff is important and the response to the strategy is also in a timeframe. Persuading staff to respond as quickly as possible bearing in mind the need to ensure that quality levels are maintained requires skill. In addition, the intrinsic nature of the divisions is described by Joe, "...*we have alot of tight deadlines...divisions are not independent... they are dependent on other information flowing from one department to the next ...*" (19)

Effective communication plays a critical role in this process, as new knowledge moved within the organisation and individual perceptions in response to the issues of time are highlighted. An officer Mike remarked, "...*when I go searching for new knowledge it is probably critical...(1)*". Compounding the time deficient environment, another curriculum officer Pam adds, "...*don't have time to reflect a lot...*" she continues, "...*it takes people time to assimilate it ...*" (2). Within that same frame is the goal of working according to Bree, "...*smarter not harder and to do things right the first time.*"(3). In

this example ‘time’ is used as an indicator of quality in terms of the value and learning expected from new knowledge entering the organisation. How will all the changes be sustained? There appears to be a tension between time, quality of work, critical relection, sustainability and the general levels of AC achieved.

Individual	Example of time reinforced by organisational deadlines	Significance to AC
CEO	Implementation of strategy – time equals cost	Disregard underlying issues to show physical implementation Sustainability issues...
Managers	Meet deadlines	Responding to the change as well as it affects them in their interaction with other divisions on formal level – getting it right the first time...
Officer	Pressure to meet deadlines	Do not have time to reflect, informed in an untimely fashion and so compromises their ability to encourage and persuade divisional members in accepting the change extent of transformation and therefore innovative opportunities – getting it right
Admin support	Respond to and work within deadline	Do not feel involved and respond to specific tasks that do not provide the bigger picture...

Table 7 - Summary of thoughts on time

This table emphasizes the issue of time and this table provides an overview and representation of how groups react to time or expect reactions or actions on time. This also indicates how time affects other factors related to AC processes.

Time affects decisions about the methods of changes in the process as described by Ira,

... But in terms of the methodology, to improve the [products] or to improve analysis and to be able to comment on the products you'll require new knowledge ...But we ain't got the time for that. You don't have the time to acquire the new knowledge because right now inside there is just an [product] development factory (25)

Deadlines and already heavy workload create very difficult and tense environments where AC can be seen as positive. Sustainability is already an issue as indicative of the kind of work environment,

...Listen sometimes you do so much work around here that you cannot remember what work you do. The speed the sheer speed that you got to travel at sometimes you cannot really remember. You might see a [product] down the road that you work on. ... and you cannot remember you work on this [product], because the final product that go before the [clients] and you might pick it up.., (25).

And as a result, another officer Ida echoed,

To be honest with you there are alot of persons who are not willing to try new things maybe because they are introduced to them too late or too late in the ... you have a result to produce unless you have a deadline by Friday ... there are very few people who will try something new on Wednesday when they know it will definitely give them the result...(7)

In terms of reflection, the experience seems to be happening after the fact,

...But reflecting on the quality of the [product]. The only time you really get to really reflect is at [evaluation] or when you got to write a technical report on the [product] or when you see the stats and you see how [product] behaved (7)

So exploratory learning is also compromised as Ida explained, “ ... I waste alot of time experimenting or whatever and people do not have that time ...you know they are doing other things...”(7). This was the reaction from a head of division to new knowledge entering Aquacon and whether it will be absorbed, Jim remarked, ‘... this is not going to work...’ (22). Another officer Mia, offered optimism based on changes so far with reference to the new CEO, “....he has more authority that anyone else before...(17). She explained, “...do not know maybe...it is how he presents the information....I mean he is able to get the support... I think he is committed”. In view of the above contribution, the CEO may be one of the factors that may increase the level of AC, for the success of the new strategic vision. However, tensions are expected and the issue of time is remembered as May states,

“...it happens at the end of the day there maybe some resistance initially but it happens because I mean it doesn’t happen I guess we are deadline driven and (PAUSE) it has to happen even if there’s resistance...”(47).

Time is used as a core factor in the power relations in the organisation. Individuals do not engage in knowledge processes citing time as the reason. This allows them to continue to meet “deadlines” set by the organisation. In this example the organisation compromises its own efforts by appearing to request attention to new knowledge while simultaneously expecting deadlines to be kept. Therefore it is not surprising individuals do just what is usually expected and nothing more.

5.4 THEME 2: ASSIMILATED AND TRANSFORMATIVE LEARNING - DIVISIONAL PERSPECTIVE

This theme continues the thread of emergence of AC through Aquacon and so extends from interactions between individual to relations within the division. First, the role of the division in engaging in interactions relating to exploratory and transformative learning actions is given attention. This is then followed with the responsibilities towards transforming the new knowledge/strategy. The view and use of knowledge in terms of quality is also addressed as well as the ability to maintain this new knowledge in order to activate when necessary. Within this scenario, the approach to knowledge sharing is also given attention, and provides a launching pad for an inconsistency of treatment within and without divisions. Underlying this setting are the structures that facilitate the flow of knowledge through processes that produce the services and content of Aquacon.

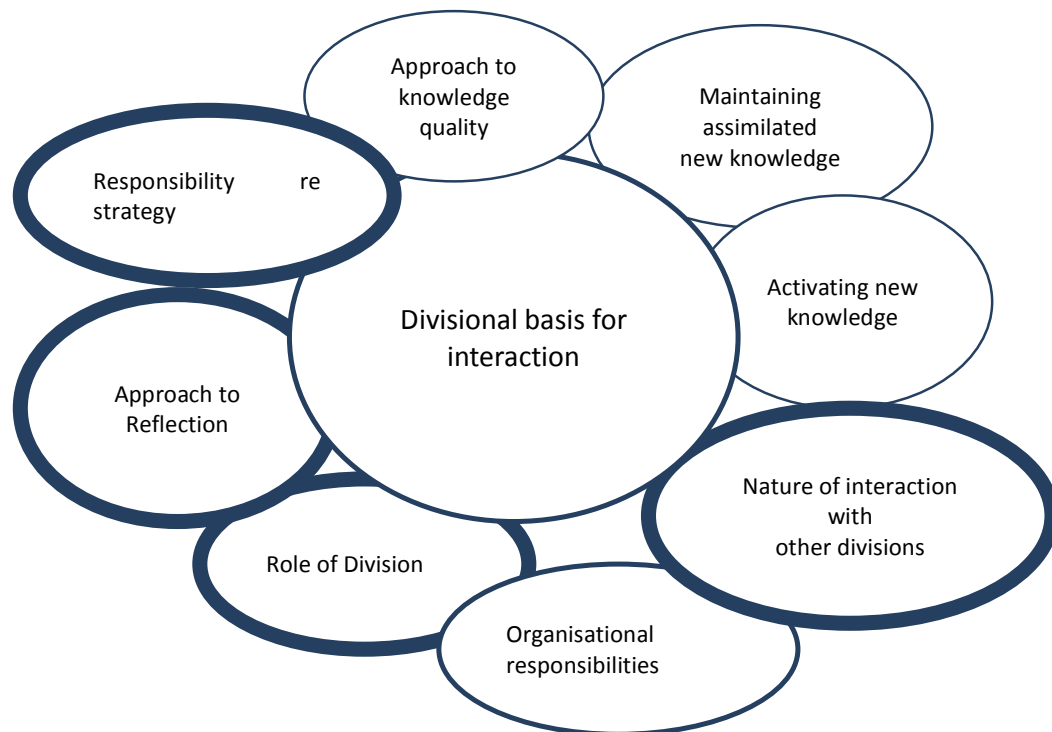


Figure 9 - Divisional influences on transformative learning

Divisions and their influences are highlighted in this diagram. The most influential are highlighted by the thick outline of borders. Their overlap is also represented to indicate the connection and association of the subthemes.

As mentioned in the narrative in the previous section, there are two main thrusts for the strategic vision. Two divisions are at the helm in directing the way in which the processes unfold. Initially these two divisions assumed exploratory roles regarding the new strategic vision in their respective areas. They simultaneously, doled out solutions to

established processes that determined the transformative learning possibilities that affected other divisions at the receiving end of this exploratory learning experience. The anatomy of the divisional factors affecting AC (See Figure 8) and the nature of the new knowledge were largely technological in the first instance and affected what can be termed the professional¹⁰ and public side of Aquacon. This theme focused on internal knowledge sharing activity and how this affected the relationship with other divisions. This theme also acknowledges the exploratory phase which is still in effect as will be demonstrated in the internal activity of some divisions and their dual state of exploratory and transformative learning. Recognizing divisional interests and the ability to reconcile those interests with other divisions are underlying and significant concerns as well.

5.4.1 ROLE OF DIVISION

The role of the division was viewed from two seemingly divergent perspectives, from within and from other divisions. Through the strategic vision two divisions featured prominently, and straddled both administrative and operational responsibilities. Western Aquacon (WA), by its very nature operated as a branch office. WA embodied all the operations of Aquacon headquarters to provide services to one country due to the size of the population. However, one main function, the curriculum is a core process for the organisation, and is according to Kay, *...circulates the [blueprint] , it's supposed to be able to fit in the environment in which the [clients] have, so it will definitely involve what is happening at that level ...*” (10). IS developed its role based on their technological “know how” and the limited technological exposure of Aquacon. Therefore a dependency developed and IS became a quasi-clearing house, handling technological processes which were not organically/structurally owned. IS division viewed their over-extended role as a hindrance to the further and core integration of technology within Aquacon. The Acting Head explains,

... there are people outside of ISD that every time IS passes a process to them that's its more efficient for you to do step one two and three rather than do step one and call me back to do step two and then I tell you it is okay to go ahead and do step three...because all I am doing is step 2.. is click and go ...but it is seen as IS work to do because they have not seen....that they are .responsible. (42)

Other divisions perceived IS role as the doers and solvers of ALL issues related to technology throughout the organisation. As a consequence, this arrangement appeared to

¹⁰ This term refers o the expertise of an individual and the position held in Aquacon

be a divisional outsourcing of technological processes. As Una in the IS division complained,

sometimes I think that I might be going around in circles; sometimes you feel I've done that already why I have to do it again; sometimes you wish some people would come up to speed that you don't have to keep reinventing the wheel a whole lot of different scenarios. You have some people go on vacation you know the day they come back because you cannot log onto the system because nobody remembers the password and then is the same people again, the same people; the you got another person everyday something wrong with the computer you wonder what is wrong with this person? Sometimes it is really you can't show you are angry..... truly at the end of the day I do know if you wanna record your processes... you just wanna go home and relax or clear your head(48)

Frustration from outside of IS, is described by one head of a division Ian, referred to the decision making power of IS division, he jokingly explains,

...I mean somebody like Guy would never be convinced because Guy's position is, we always have good arguments about why you want to get involved in that, that um, day to day operational things for your subject officers, you do not need to know that so he wouldn't even put the software, he wouldn't even give me the link on my computer to.. (laughs) (23)

This appears to be a hindrance to their individual process in exploring for one head, in understanding the various processes underlying his divisional responsibility. Another head of division Val adds,

I could give you an example recently the IS team has decided ...it has been agreed that they will be a purely technical division... and things that they see are just automation you push a button and it does certain things ...so they will divest and so we have been recipients of alot of those things ALOT... (46)

This demonstrated the power of IS in determining the extent of divisional ownership of processes. This scenario underscores the interdependency of divisions, and the domino effect of various forms of learning. To transform into a purely technical division, IS has to move into an exploratory learning phase to provide purely technical support for Aquacon. The implication for learning is that IS was engaging in simultaneous learning AC processes. This will be discussed in more detail in Theme 3.

Operational divisions such as Business development and Education and Production were at the receiving end of the changes in technology. Education and Production was at the

receiving end of both thrusts of the strategy. In addition, they were not engaged in primary IT exploratory activities. Divisions with the main operational responsibility of churning out the core services and products to customers were expected to respond and use technology to change how they engaged in daily processes. One technician Joe who participated in training as part of the transforming process described his experience,

....I have had training overseas at Xerox where I was exposed to new ways of doing things to achieve basically the same results..or better results and storing of information you know... being able to manipulate and use certain programs and to achieve the objectives ...in a nutshell I would say to improve the technology that we haveone of the good things about Aquacon now is that I find they are really receptive and you can see the change and you have to go with the technology...everybody is getting on board so I suppose becoming a lot more comfortable with it(19)

Others related to the development of the curriculum and the exams voiced more vigorous concerns of lack of participation in the early stages. This was explained by Joy as,

...the things that are happening I know.... I'm feeding all the changes of my department to another department I know for sure that the changes in those departments are not coming out of me because I had a meeting last week and in that meeting reference was made to certain things that were happening that was the first time I was hearing about itand it is not a matter of blaming anybody I think a lot of us are just so.... (18)

In reacting to this perception of mistrust, the negative reaction was compounded and created additional tension as officers related deadline pressures and little recognition. Eda explains,

yes in terms of time for more information ...because we are so pressed now in our work...that we do not have time for all of these seminars all of these fancy things ... these professional development seminars ...we get NK that is at a minimum...we have to do that on our own and we do not really have time because the work encroaches on your own time ... so if you say I going to work at 9 -4 and in my own time I can get the information ...work is not 9-4 work is 9-7 and some times after...so there is little time really for you to use to get that NK it has to be within a work setting ...and because of the pressures of the work we have not found time to put aside for that kind of ...information gathering or information sharing that you talking about... (33)

And the result of all of these activities was put succinctly by Bea, another officer,

So in our minds eye we were already full, but we could not say this is not a good time for us because the next question would be when will be a good time for us. So as I say just like how with your interview you say you have to fit it in, so you fit it in, but you fit it in knowing that it is a really, really tight schedule that you are going on to. Right, SO you don't fuss about it, but that doesn't mean that everything that you have to do is being done

effectively ... so you are struggling with that. Why should I be the only one to make a fuss about it if everybody else is quiet about it....? (34)

Technology infused processes created a domino effect in the relationship between IT and the other divisions. IT expertise was not as dispersed as the curriculum expertise and the nature of curriculum development (highly participatory) and the development of core changes was met with resistance. As is the case with the individual perspective in dealing with new knowledge, the influential divisions functioned in one way internally, and then another when interacting with their counterparts external to the division. Technology seems to have been assigned this dominance due to the nature of the technological knowledge that it had to implement, and the approach taken by IS as explained by Guy, the head,

there are technology hitches ...there are some training issues that we need to look into be addressed but I am prepared to jump in at the deep end ..and push this way front forward....pull everybody else with me..and if the boat gets away...you going to stay on the shore but this boat floating.....now that would be my ideal approach to life ...(42)

The influence of this approach is incomparable to the positions of other divisions and the quality of the knowledge that they contributed to the AC process. The power of the IS division remains, as the head of IS division can decide whether another head may have access to information. To what extent does the technology dictate the way in which a key individual needs to do his work efficiently? This idea is discussed in the following section.

5.4.2 APPROACH TO KNOWLEDGE QUALITY

The new strategic vision established technology as the unequivocal answer to one of the main solutions for the movement of Aquacon into the 21 century. Determining the nature of the developments out of the strategy was not a challenge as it was accepted that technology was the answer as the CEO explained in theme one. From a divisional perspective the IS division, implemented technologies that were reliable, timely and demonstrated an accurate response to problems in Aquacon. Accuracy and reliability of new knowledge depends on who and how it is presented, Ian offered his thoughts,

Yeah, time, yeah timing, yeah sometimes the way the new knowledge is framed. The way the new knowledge is communicated to me sometimes feel look needs to be reshaped or you know rethought....(23)

The power and political influences are implicit, and continue from the influences of the exploratory learning stage. This also means that the undertones of negotiation are present as well. Meg adds,

...you share it but you know that when you make a proposal to management you will have to come with all the details to cost and those things ... before you go to management you come and discuss it with staff and see this is something that they will support...and usage and so...even if they don't .. I might not even try to get their support.. and I go out and do the research and get the information costs and the details and so on and present it to management(16)

As demonstrated in the previous theme, time is a matter that is critical for AC process dimensions, and is acknowledged throughout the organisation. However, addressing the matter of 'time' does not seem to be a priority for some as it is for others. Deadlines are a core element of the operational and administrative processes of Aquacon. The time issue is compounded when this is realised in the AC process as well. There is this sense that despite time as a major issue the new knowledge will be absorbed. However, the extent or intensity of absorption to encourage effective change or innovation is uncertain. Timing of new knowledge is also a factor as explained by Meg,

right now going through some training and sessions and there is not real way of deriving the benefits of this training right now...because these are systems that are not fully functional ...so you train methis is how it will function.. that kind of training well you can't go back to your desk to practice it. ...they are not working and so all this training now ... I can't really use it ...by the time I am ready to use or there are so many aspects of it that I can't even use , but other people might be able to use itWhen I can come on board and use it or so I would need to be re-trained.... to me training is working with the thing you get some knowledge and most of these things are user friendly. you don't need to take me through a 2 or 3 hour sessions to go through all of that with me.. the best training is actually...working with the thing and you understand and you have somebody trouble shoot with you ... to me that's the best thing.(16)

Enhancing the critical thinking aspect of the curriculum created challenges for Western Aquacon (WA) in aligning the new knowledge to the existing setting which was forged by the historical functions of curriculum development at Aquacon. The curriculum development processes requirements depend on high levels of expertise and participation throughout the region. Therefore communication as well as information and knowledge sharing is paramount, particularly with a process that operates in a geographically dispersed setting. Officers within WA were concerned about, the extent to which the strategy although seemingly relevant was also cognizant of the environment, where

communication can raise the level of understanding within which they functioned as Ira argued,

.....workflows of other people and a lot of people don't listen to each other. They only want get their aspect done.....integrated approach still getting some licks because people don't really listen to one another (25)

Within this setting how new knowledge entered the division was another issue raised that appeared to compromise the nature of interactions within the divisions and is revealed with two opposing views from within the same division. Pam provides one view,

whatever NK that we have, we have meetings with Jed because he is our supervisor. So when anything comes up we tend to share. Well, well, anyway. Some politicsI find that it use to happen more frequently in the past but for the past maybe 2 years or so ...there's some breakdown. I mean you share, but not the way that we used to share before, because I suppose new people coming into the organisation and people see things differently and whatever so. (2)

Eli contributes an alternative view,

I'm saying that in cases like in that period you know where there may be new knowledge by extension new practice and new methods we're trying to bring it into the organisation and then from your colleagues... "that is not how we do it and that's not going to work" and you wondering of course it wouldn't work unless you give it a try and you can see the feasibility of it and you can see how speedy it would be and how it would allow people to work...without having these major stumbling blocks ...people are not willing to even give things a try there's a certain amount of routine I know in what we do and which to me is affecting me sometimes but other than that I think bring new knowledge... I really I can say from my own scheduleto be honest I regularly call my colleagues you know and we talk about some things and we say well, "I think you know we should probably do this" but mainly in terms of competence knowledge (24)

This above scenario provides grounds for hindering the value added to any new knowledge entering the division, and points to lack of understanding of how to function for maximum results in this environment. As many of the examples provided indicate, knowledge quality appears to be associated with who presents and determines that it can be actionable. This may be due to when new knowledge reaches certain levels of analysis, in particular when IS solutions have already been selected. This can also be seen in the use of technology that a division may be able to act (expandable, easily applied to tasks) on, for example the office communicator which is discussed in theme 3.

5.4.3 MAINTAINING AND ACTIVATING INTERNAL KNOWLEDGE

Although the IS division and Western Aquacon directed the defining structures of the new knowledge, internal activity in response to the new knowledge was not harmonious and convincing staff members to begin applying new knowledge was a challenge as will be demonstrated in theme 3. In instances where officers in curriculum development lamented the knowledge of IT that would propel Aquacon forward, the question of how this was activated becomes a debate and raises the issue of recognition. There are two conflicting interests at play, new knowledge as strategy entering with a new CEO and another point of view where Kay commented about the NK not being new, she argued, “...people might think they are bringing NK but it might not be necessarily new...”(10). If this was not new knowledge, the question of the ability to activate maintained knowledge at that particular point in time becomes a major signpost in the emergence of AC. Therefore, the issue here is not whether the selected technology or the solution with a technological focus may be effective; rather the root of this problem is who determines what may be effective and how it should be developed. This may be the cause for the “polite” response to ideas within Aquacon. Fay observed,

...loved the new ideas and so that is the good part of it, the bad part, well I would not call it bad, we might go to the retreat and say this or that, and then go back to the office and do the same thing or the changes might happen for the first couple of weeks and then they would go back to the same thing.(6)

The assimilation phase was a challenge. However, as indicated above, integrating training while performing the task may be the approach to achieve actual change. This too may also have disadvantages, which will be addressed in detail in theme 3. Also, the critical role that individuals within divisions play in instances of reluctant reactions compromised the transformative phase of AC. However, this is difficult to determine as the surface actions may show a support for the strategy and its various mutations. This, as Meg indicated above, is also a challenge, training is a major part of this activity and ill-timed training was not followed through with integrating tasks. There were notable exceptions. One useful observation of the nature of new knowledge was the way in which IS division seeks it and uses it. Using podcasts and interacting with individuals within their field even outside of Aquacon added to the power that IS had established through the new strategy. In addition, this edge ticked many of the knowledge dimensions (intrinsic, contextual and actionable) that allowed their activities to be carried out

immediately. These advantages did not reduce the level of hindrances to assimilation and transformation in terms of the time required. Nevertheless, skillful politicking may have eased the tensions between divisions.

Within IS division, functional politicking in the form of team work was evident and in this way some of the challenges that officers in other divisions faced differed. IS staff members leave a discussion with ideas to work with actionable knowledge, with possibilities of how to apply and a vision of how potential solutions may succeed. Mike explains, that when he has a problem,

I check online for the most recent posts or in the forums groups, that sort of thing ...recently I have been going on with some webcasts its video discussion groups in real time .. so you get from the experts in the field whats current and what is happening (1).

To begin the process of transformation support from those in authority was required for a division to act. Therefore as mentioned in theme 1, for many it was not new knowledge, but prior knowledge waiting to be activated. This activation was long overdue, and the perception that staff were not able to come up with solutions was not the reality of many officers. The inability to activate new ideas was based on the lack of legitimacy at the time. With a new CEO, the previous ideas now have legitimacy, which are further supported by the authority to carry specific strategic processes forward¹¹. In instances where officers were reluctant to support the new knowledge, the response was a passive “*I will dance all around*” or “*...or we will do just enough....*”, or according to one officer, “*...they say nothing...*” The ability to slow down the AC process as well as compromise the extent of the absorption of NK is used by a few employees when given the opportunity.

There was a difference in the way the expertise of one group was treated or regarded as opposed to another. IS division credentials were accepted, but in Education and production division and some groups in Western Aquacon, where education levels and historical expertise were the cornerstones of Aquacon, many perceived a deep questioning of their competence? This intensified the situation and groups that were once drivers of the operations of the organisation were in many ways relegated to the background. There appeared to be an over-shadowing presence of organisational authority to comply and

¹¹In this case this maintained knowledge was contextual, but not actionable

very little negotiation. The effectiveness of this change is dependent on the extent to which individuals absorb this new knowledge. The data show many hindrances at different levels. However, hierarchical structure demands compliance. Consequently, on the surface one can see compliance, but skillful negotiating, encouragement and promoting and in some ways recognition of ideas may be a first step towards commitment from reluctant staff.

Past experiences have made reluctant participants who fear that ideas were not solicited and further even if they has been, lack of recognition compounded the passive reaction to the changes. Prior related knowledge is not limited to what they knew about the work processes, but how change and general operations were carried out within Aquacon under previous management. Past experiences may affect others in different ways, and they also influence how new knowledge is activated. Reacting to this new knowledge is tied to the climate in each division and all the changes relating to the new knowledge/strategy.

5.4.4 APPROACH TO KNOWLEDGE SHARING INTERNALLY

Knowledge sharing is essential within the processes of the divisions. It is the foundation of how individuals operate to respond to the strategic vision set out by the CEO. In IS division there is a high level of sharing and exploring. The operating approach was described as “open and flat” with all staff having a voice and giving an opinion. Guy, the IS head expands on this with an example from within his division,

I think that generally our KS is more informal than it is formal ...you know if we discover something via...email via web...we will probably broadcast...to the IS group...if you have a challenge you will probably go ask depending on what it is ..and what you think of a program.. ...you go onto a forum.. supplier or technology specific ...and see what's there and you raise a question.(42)

This is supported by Matt and Gia in the IS division who both agree that discussions are open and frequent with opinions supported by current solutions which characterized the divisional interactions. In the IS division, knowledge sharing begins at an early stage in the first phase of AC, which intensified the level of participation. Suggestions and opinions are discussed openly, based on prior knowledge quality (they do their research first) decisions were made although they also “*agreed to disagree...*”(Guy) They were charged with exploring for new possibilities experimenting and discussing with a partner which was then shared more widely within the group.

Divisions	Internal KS tendency
ISD - Primary	KS begins early in response to any event, highly participatory at all levels in division and proactive, encouragement for those who do not actively participate, decisions made based on quality of K, exploring high because need to keep up with changes in technology,
EAS - Secondary	KS begins with response to processes affected by technology, participatory at higher levels of the division, reactive, need to know basis, decisions made on advice from CEO and ISD, grapevine (when analysed) is regarded as faster and more reliable than formal email,
RO - Primary	This division directs internally and public face of Aquacon. Conceptualization for metaphoric trigger - NK/Strategic vision, ensures that vision is available and explained through heads of divisions,
HR - Secondary	KS when required shared and brainstorming takes place in response to changes
WZO - Primary/Secondary	KS is open for some and not for others,
CSBD - Secondary	Open and team like atmosphere with only two members
QA - N/A	One head who shares with CSBD
FOM - Secondary	Merging of finance and officer management - discussion informal and formal a lot of NK comes from outside, still difficult, misinformation and sometimes officers are hearing about events for the first time that are already under way
EDPD - Secondary	Merging of exam development and production. sharing is done when there is time, high levels of security cloud the willingness to share, many assumptions about appearing to know too much, finding the “appropriate time” to share remains a challenge

Table 8 - Summary of knowledge sharing within divisions

This table looks at KS within divisions and how divisions react to or move into the AC process. The opportunity to move into AC is given when a division is a primary figure in the AC process or secondary. This also relates to the way in which divisions react to AC processes.

In the Curriculum development division, high levels of participation are necessary as well from stakeholders from within and without the organisation so that it represents the current and future needs of region. This participation is important as it cultivates a more accurate and meaningful contribution to the future of the region. For this reason, the way in which the division operates requires participation from stakeholders from outside of the organisation who also have direct interest in the curriculum developed and these interests are represented by educators throughout the Region.

In other divisions, for example EDPD, and Western Aquacon where security is paramount, inappropriate access may risk the product under development. Problems are shared, however on “a need to know basis”, which in those cases linked knowledge sharing closely to the grapevine. The required depth of exploring may be beyond

immediate returns as can be seen in the application of some technologies. Knowledge sharing is critical; however, the more important issue is knowing what to share when. The transfer of knowledge, in terms of “what to share and when” from outside participants, shapes the core of the curriculum. Knowledge that is included in a report is at the discretion of the officer managing the external participants involved in the development of the curriculum. Ida explains the complexity of sharing,

...there are times when you having this new knowledge may make you stand out ...or give people the impression that you know more than you do or ..or better than they are ...and this applies to the work environment as well...as I mentioned before I like technology .. I am into technology I use technology wherever possible I experiment with technology but there are colleagues who have not reached that far...because of time because of fear...I wouldn't get up from my desk and say to someone hey you know that you could(7)

The experience shared reveals a very intricate and sensitive environment in which informal sharing is restricted, and staff members are reluctant to share potentially beneficial opportunities. Knowledge sharing from the above account suggests that it is normally constrained. This poses a serious disadvantage for AC processes. Incentives to be innovative may begin by diluting difficult sharing environments which currently exists.

5.4.5 APPROACH TO REFLECTION - EXPLORATORY TO TRANSFORMATIVE

Matt an IS officer explains his approach to reflection,

....to reach to the point of Z right. ... while on different process reflecting on where you are.... And recording especially after... I guess that after reflection these are the issues that would have arisenI always like to know what the expectations are on exactly what issue (31)

From another perspective devoting time to reflection is a difficult task at Aquacon. From Kim's (IS officer) perception, “...we talk fast pace. I don't even have time to reflect, which is not good...”(11). However, Ken who is aware of the general problem of reflection intended to, “... engage key actors involved in any particular issue...in critical reflection on the issues of how they do things...”(12). The intensity of AC is in question as pressures to complete daily deadline driven tasks were also expected while staff members were expected to also accommodate required training. Perceptions on reflection were the same acknowledging the need for it and also engaging in it. However, the idea of reflection appeared to be a range of ideas of thinking about work processes in an effort to improve on them. Staff engaged in this activity through periods which ranged from

throughout the day, daily and during appraisal, or when there were problems. Time was the most significant of hindrances to reflection, or the opportunity to think as opposed to doing.

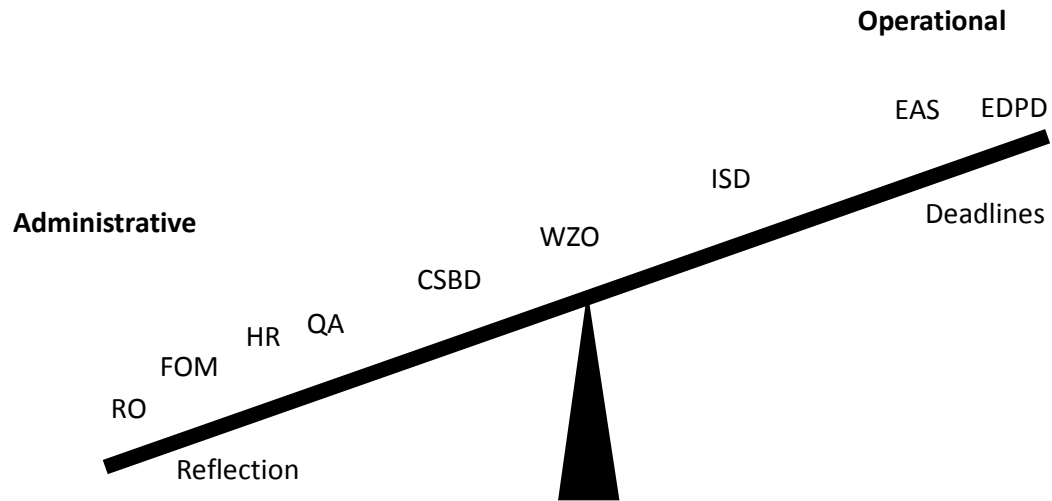


Figure 10 - Divisions on a continuum - Time opportunities for reflection

The findings indicated a tug between time and opportunities for reflection. The tug between divisions is represented, showing that at the operational end, reflective opportunities were scarce. Whereas, at the administrative end they appeared to be more opportunities for reflection.

The lack of opportunities for reflection, were indications of the nature of the transformation activity which could more likely result in superficial changes and raised the question of sustainability. In particular, in core processes of exam development and production, where reflection should be most apparent, time was cited as the most important obstacle. Consequently, potential innovation activities are also questioned. The individuals in the AC process demonstrate their influence again, as Jim, head of Business Development division explains, “...so it did not go through a process of critical reflection because of who introduced it, now that is one of the situations we face at Aquacon.....” (22). This example echoes the value of knowledge being attributed to individuals and how new knowledge is presented during the stage of Exploratory Learning.

Conceding to the challenge of developing one’s repertoire of successes, Ida admits, “... I do not think that ...I have enough time to reflect on things that go well...” She continues, “...so it was reflection ...as a result of ...the short coming...”(7) These statements bring into focus the comments from Guy who, described, “a blame” climate and where the “messenger gets punished” (42). This position results in not wanting to engage in

reflection for fear, as Eli comments, “... *my critical reflection ... because I don'tit may not always be positive...*” (24). Addressing problems to improve and increase successes to motivate and encourage transformation appear to be contradictory. There appears to be an inherent incongruity of pushing for change, in an environment where the change is needed, while at the same time pointedly indicating the many problems that may not be solved. There is a contradiction of intent and action, based on the result that is expected from the AC activities. Skillful negotiation may be a useful tool in reconciling these interests.

In a group setting, reflection was a form of reporting and when reports were written, Eda describes,

Reflecting in order to improve something...we do that... I think that it is done in a more structured manner ...where we meet in our groups...and when you are writing your reports...and ... in the course of your reporting.... you also reflect..more ...along the wayas you doing something...planning meeting or you... one of the other officers was saying....you know I was wondering if this was the best way with the technical report should be written and then you reflect on that you say this is how we have been doing it for a number of years but that is not the best way, maybe we should have done it differently....when you writing a report of a task,... and when you start to do a new task you reflect on it...on how you are doing it and how ..it should be done and how it should be done better... well these are just the informal and formal methods of ..yes reflection..(33)

Reflection does not appear to engage action. Also, the group or one on one internal discussion appears not to include external knowledge, but focuses on what has occurred before. The scope of the discussions appears limited and restricted to what is already known and reworking it. Venturing outside that arena again is constrained by time and deadline-driven processes.

Furthermore the one directional processes of curriculum development, in that they are not closely connected to the exam development to see the results of the process, curtails opportunities for reflection. This process does not allow for the reflection at that level, and so the interaction of the processes at various stages of development of the product, affects the effectiveness of the end result. There is a clear gap that compromises the integrity of the process between curriculum and exam development and the results. The process could dovetail into a closely knit cycle to develop, sustain and enhance the end product of the organisation. This may essentially build into the process opportunities for

learning by fusing the processes and associated expertise closer together. The vertical and lateral movement of knowledge appear to be severely hindered by the complexity of relationships that are deficient in methods of reconciling inherent tensions within Aquacon.

In an effort to penetrate the hierarchical structure of Aquacon and to be more inclusive of innovative ideas, Jim explained a process of recognition,

....it is perceived that there are certain people who have the right or the capacity to introduce things knowledge that can be generated at lower levels cannot see the light of day or may not rise through a process and become incorporated into what we do and what we think, others that need more rigour can be given an easy passage because of the person who develops it....(22)

Incentives and rewards were given for methods of saving, which in the short term would cut costs¹². From an AC perspective where knowledge sharing is a necessary activity this incentive to save money creates competition, therefore opportunities for knowledge sharing which may increase levels of AC were not realised. AC process can benefit from the recognition of sharing knowledge. Reflection appears to be internal and does not extend to interactions born out of the relationships with other divisions, but rather is isolated from problems within. Understanding the challenges of one division and how that affects the relationship with another division needs greater awareness and action.

5.4.6 INTERACTION WITH OTHER DIVISIONS AND ADDRESSING CONTRADICTIONS

Joe a technical officer in Exam development describes the relationship between divisions, *“....we have a lot of tight deadlines...departments are not independent... they are dependent on information flowing from one department to the next so it must be seamless.”(19)* This comment points to a need to understand more than simply individual levels of responsibility as Ira has indicated before, as many staff members do not extend their awareness beyond their perceived responsibilities. At the divisional level, the heads of EAS and EDPD indicate a method of sharing when a problem arises and that sharing is limited to the current problem.

¹² Incentives for KS may be a method which supports the strategy through its phases and could be the

There are different forms of dependencies and a major example in this organisation is the reliance on IS division for automating processes that belong structurally to other divisions. These processes have remained within the purview of IS simply because they are IT related. During this transformation process a resulting activity was IS divesting processes. IS has reassessed their role in the AC process and moved simultaneously between exploratory learning of the division as technical and influencing another division by transforming through reassigning processes that are owned by other divisions. Val the head of EAS stated,

I could give you an example recently...the IS team has decided ...it has been agreed that they will be a purely technical division.....we have been recipients of alot of those things ALOT... before they use to print and run our time tables..print out attendance registers ...help us with the beehive operations..to capture operation and they were there they use to do all of that..run rosters, run reports..now we are doing it all for ourselves(46)

Transformation learning is occurring for both divisions in different ways. Val explained further,

...now what I did say to Guy...is since it is alot of technology..for everybody to learn do not give us all there is one process with the beehive operation that we are asking you to hold that for one more year .. give us the opportunity to learn what we are doing, go through one process and then you can add...(46)

This indicates that both divisions are moving between exploring the integration of new IT processes on one hand and, on the other exploring the processes associated with operating as a purely technical division. This throws IS in semi-exploratory and also assimilation and transformative stage, as shedding processes facilitates internal exploration to becoming a more technical support division. IS division appeared to straddle both operational and administrative processes, due largely to the history of the organisation and also to the treatment of IT as the solution for all organisational problems. This dual role resulted in high levels of exploration for other divisions as well, which hindered IS's internal transformation. This also affected their ability to be supportive with effective "Help" facilities during the implementation of technologies (See Theme 3). Reconciling divisional responsibilities could have played a critical role in the AC process. Rationalizing many of the difficulties was pivotal to managing the inherent chaos when dealing with new knowledge, coupled with misunderstanding of roles required skillful negotiation.

5.5 THEME 3: EXPLOITATIVE LEARNING - EMERGENT AND PRESCRIPTIVE

This theme utilizes the implementation of “the office communicator”, to illustrate the value of two specific forms of learning emergent and prescriptive, which are influenced by AC process occurring within Aquacon. The officer communicator (OC) was used to illustrate a result of the NK/strategy as well as continuing to the exploitative phase of the AC process, which explains the exploratory, transformative and exploitative learning overlap. The OC is an appropriate event due to its organisation wide influence. The hierarchical structures and their influences as well as the memory of the organisation form part of the overall analysis and interpretation of this theme. The indicators of prescriptive or emergent environments within divisions are depicted by the action and reaction of respondents to the OC. This section is organized in a manner that highlights the reactions that are relevant. There are a number of foci used to demonstrate the nature of the new knowledge which generates reactions are mainly in relation to the IS division and user type reactions internal to the organisation.

Divisions	Emergent experiences	Prescriptive experiences	Divisional -Cross-
ISD	Pod casts, training coming out of need for help desk,		Prescriptive tendencies
EAS		Technical training	Not applicable
RO	Outlining the change to come		Prescriptive
HR		Reaction to training	Prescriptive
WZO	Syllabus development highly participatory,	IT training	Emergent
CSBD	Experimenting with technology and radically changing way of work	IT training	Emergent
QA	Creating methods of operation	Not applicable	Not applicable
FOM		Technical Training	Prescriptive
EDPD		Technical training	Not applicable

Table 9- Division experiences - Emergent and prescriptive Learning

This table provides an overview of Emergent and Prescriptive Learning and across divisions. Each division experiences gives another clue about learning within divisions. The interaction between divisions and learning opportunities also give a general development for learning.

The varying experiences can help to understand the questions which arose about the way in which the implementation phases were viewed by the divisions and role that one

particular division played in the process. The specific manner in which the implementation process was carried out with regard to how the learning of the new knowledge would occur is explained. The effect of learning through the implementation process and learning based on decisions of how specific aspects were introduced to divisions will help to explain the difficulties associated with this process. The following is a brief background to the project as the CEO indicated that the benefits were so obvious that there was limited project documentation and development.

The Office Communicator project was initiated by the CEO as a cost saving strategy on communications. The objectives of the project were to increase access to employees and allow them to communicate with the office while on travelling duties. Another objective was to decrease telecommunications costs throughout the organisation and use the Internet as the main support for electronic communication. Since Aquacon is a regional organisation, communication can be expensive with officers travelling throughout the Caribbean. There was opposition by employees to the project particularly in terms of the way in which it was implemented. However the opportunity to express this was circumvented with the quick removal of old devices which were replaced with new ones without the option of using the old ones. As a consequence, employees were forced to use the available communication devices (new Internet phones, internal online messengers), despite the difficulty they encountered. Senior staff members and officers who travelled were fitted with Blackberry phones, which allowed for a constant connection to Aquacon's network.

The benefits of the OC was described enthusiastically by Bea, an officer in the finance and office management division,

....something like there's a lot of technological drive going on in Aquacon right now, So, Something like the OC, the office communicator, it is there and you have to figure how to utilize it to be more efficient, so something like the OC that is on, if you call somebody and you could speak to them and trash out a problem, ... without moving from your desk, Sharing your desk with somebody that is new knowledge. Um, how does it impact on you, you use your time more efficiently (34),

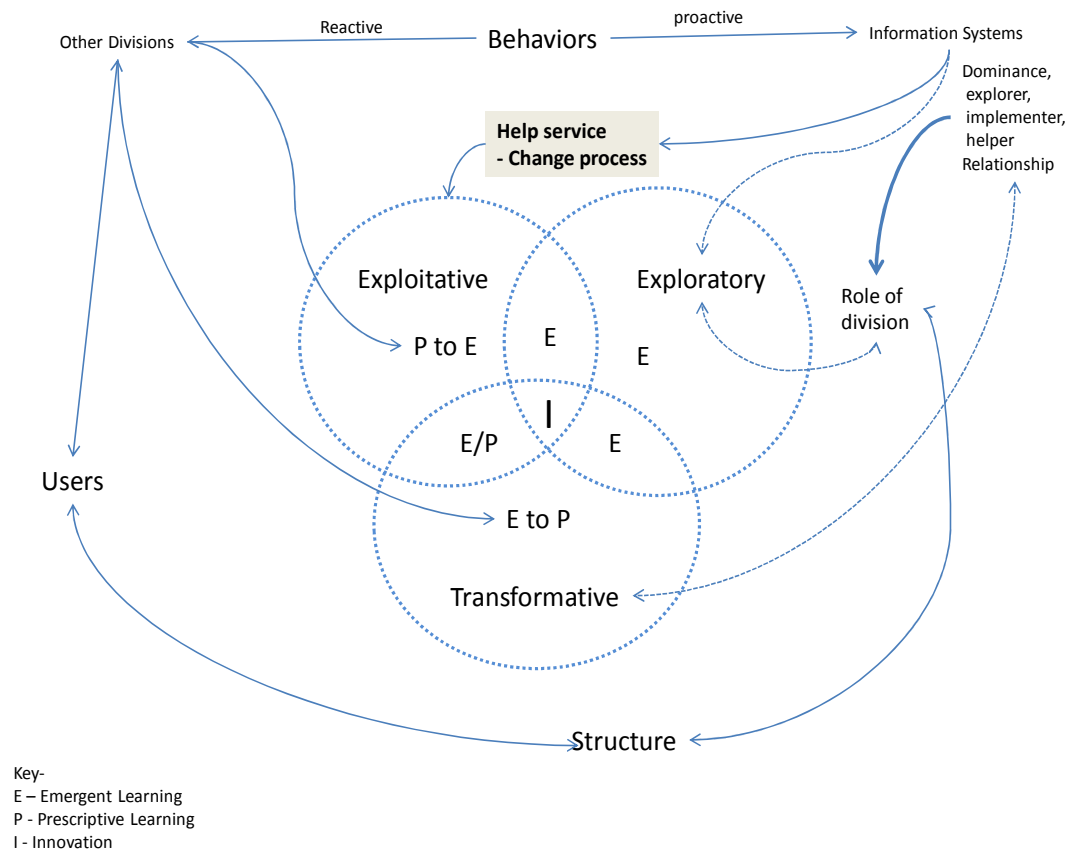


Figure 11 - IS division - Emergent and Prescriptive Learning

This diagram demonstrates the layers of learning as it moves through the organisation from the processes from the IS division. The OC event, and behaviour of divisions in show the various stages of AC as the division react to the change in communication devices. It also shows that through the interaction with the divisions, the Help desk become a focal point for reflection for ISD.

5.5.1 EXPLORATORY LEARNING

IS division played a major role throughout this implementation process overlapping the exploratory stage of identifying and acquiring the technology, testing and then implementing. According to the Annual Report 2009, *“the old telephone PBX system was decommissioned and the equipment removed”*. The following quote indicates the nature of the approach used to introduce OC from Guy the head of IS division, *“I would either pull you or push you...I do not think I am of the temperament that will sit back ...and you have forever to decide when you want to move”* (42) This quote clearly indicates the prescriptive tendency reported at the time of the implementation. Internally, this is contrary to the reports from respondents from within IS division who spoke of an emergent environment. Every IS division member is charged with exploratory tasks to ensure that knowledge of their specific area is current. They are free to debate and bring new ideas to the table. As Matt in IS division stated, *“... always looking out there for any new knowledge, I’m not going to utilize all but any new knowledge I would like I would*

grab onto and see how I can use it in my work.”(31) The learning strategy appears to be emergent within the division. This is contrary to the prescriptive strategy used with other divisions.

It is apparent that ISD and user divisions experienced different phases of the implementation process at different times. As a user the other divisions were exploring the OC when it was integrated directly into the daily work processes. One respondent shared the experience, “*....we were not given any training, we were told the system is coming, not only me but other people felt negative, ”*(27) One other division considered the exploratory phase in like mind to IS division despite doing this exploration as a user. The business development division explored the full OC, moving to the extreme of not having physical devices save for a laptop and blackberry. In particular Bev shared the following view,

...” these are things that you have to quickly assimilate in order to move yourself to the next level because I mean as I tell people the reality is that this is where the organisation is going...I could just sit down here .. and say that new phone is challenging (gesture to phone)..the telephone system.... This is the phone and it is on my computer and it follows me around and I walk with a head phone..so anytime I plug into the Internet...I am basically available..”(35)

Other individuals in all of the divisions retained the hand set for functional purposes. The dominant exploratory role of the IS division is inherent in the nature of the new knowledge (technology based) created a barrier between ISD as the implementer and the other divisions as those charged with assimilation processes.

The separation of the discovery experience from the remainder of the divisions created a barrier to more positive reactions to this new technology, despite respondents’ awareness of the potential of OC. One individual from the EAS division responded, “*...they think we are robots..*”(16). Another respondent expanded on the point and added, “*... persons who have tested the system themselves...say look here and send an email ... saying ...these are the benefits*”(45.) The overall implementation process began with the exploratory activity by the division to determine what type of OC system to implement. The next phase for transforming the new technology was introduced to the rest of the organisation through what appeared to be a prescriptive manner, while simultaneously leaving an opening to individuals to call for help. This meant that from the initial prescriptive strategy of the IS the transformative stage was underway. This was not so for the remainder of the

organisation as they were beginning the exploratory stage within their purview. This led to a negative reaction from one respondent from the EAS who stated “... *if they want me to use it, I will do just what I am supposed to do...*”(33) which created a barrier to independent learning.

Respondents in all of the divisions indicated that they felt left out and even more so when the process of change appeared to be severe. The level of different types of learners was not considered as indicated by this respondent, “...*the mode in which it is transferred ...is important...they need to be reminded....everybody is different ... at work at different levels...*”(7) The majority of respondents irrespective of division felt that the manner in which the technology was introduced was inappropriate, but had to do what they were requested to do. The exploratory stage did not extend to many individuals outside of the ISD division. While other divisions were reacting to the exploratory stage, individuals within the ISD were frustrated by the sheer volume of requests for help for what they considered unnecessary support...”*they call for the same thing over and over....*”(11) For ISD, the transformative stage had begun, but in a way that is specific to the division.

5.5.2 ASSIMILATED/TRANSFORMATIVE LEARNING

The nature of the exploratory stage has implications for the transformative stage of the process. As indicated above in the exploratory stage the head of ISD stated that the strategy employed required the removal of the old system and installation of the new system. The user perspective is summarized in this response,

“...I remember when we introduced the OC...that was stress.. complaints...I complained also because ... I think not knowing how to use the product and it is not just not knowing ...orientation is very important if we knew the system... ... nobody would have made so much fuss.....I think it is how things are done...so you would find because of that...people do not embrace change ...but if you had been oriented you would know” (27)

This example shows a support for the traditional training strategies with properties of a structured curriculum with specific outcomes. The above quotation reveals a number of necessary elements, such as training, or a familiarity with the product “orientation” before using.

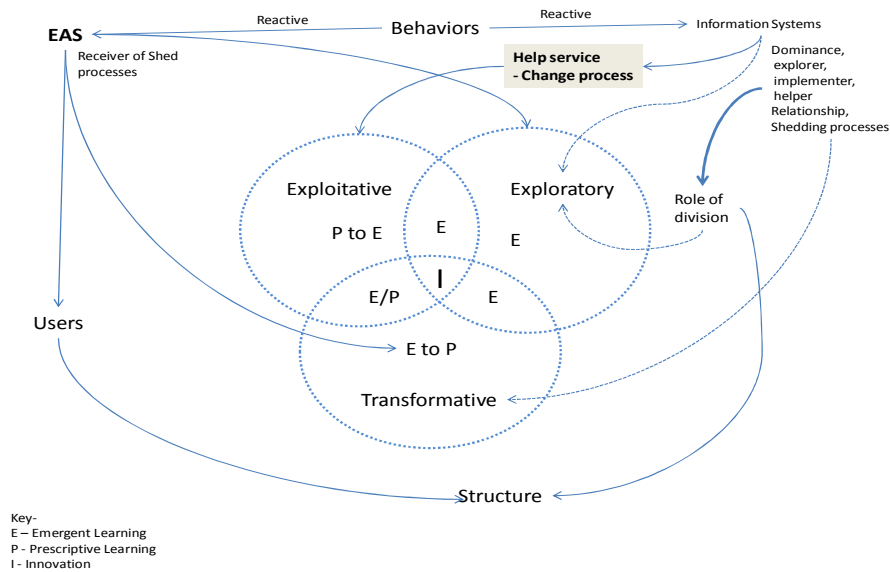


Figure 12 - EAS experiences of emergent and prescriptive learning

This diagram shows another perspective of a division engaged in similar experiences, but on the receiving end of the assimilation/transformation process. There is a gap in the process for EAS as there is reactive behaviour, and proactive from the dominant division ISD in figure 11.

The simultaneous integration of two complementary levels of learning (exploratory learning and emergent learning or self-directed learning) in the integration of the selected solution appears not to provide an opportunity for reflection. This is a significant implication for testing and trials of the course of transforming the processes that employees engage in to ensure effective use of the technology. This transformation for the “user divisions” had repercussions for IS division, in providing a help service. Within IS, the volume of help requests and the lack of training in providing a help service was also a cause of frustration. One of the major implications for AC is that with prescriptive learning there is limited overlap with the phases of exploring possible technologies, using the technology, and using it in a manner that indicates a higher level of use, leading potentially to innovation.

The learning strategies and the AC phases when separated (by division and role) as in this case, raise many issues, e.g., as to when training or prescriptive learning is needed and when emergent learning can come into play. Transformative learning is the key to sustaining learning; however, its weakness lies in the connection and tactical use between these two forms of learning. In addition communications also plays a major role even when one learning strategy seems more prevalent; the negative reactions tend to be higher. “... they do not listen to us...” appears to be the common thread of conversation throughout the interviews. “... these are not new things, we have been talking about it for

years, but no one listened....” ... now they want to make as if it was their idea” (10). Communication and lack of recognition are evident here. It is worth noting that these changes appear to be ideas from employees from before, but the reactions to those changes that did not appear to come from them results in negative action. One respondent commented, *“what is best for the organisation can be presented by different people, and the same kind of knowledge can be presented to people differently...”(13).*

5.5.3 EXPLOITATIVE LEARNING

The complexity of AC, and the learning strategies employed during transformation, provides a contrast for their positioning in achieving effective absorption. One respondent offers this about their experience, *“... people come in the department and say you have to hit the ground running ...that's a lovely term until you have to do the running...”(27).* When placed within a context when many feel that their input has been overlooked, this reaction becomes common. To increase opportunities for exploitative learning, as it depends on the nature of transformative learning one must bear in mind,

“...one division to the next.. even within a division ... so orientation is important orientation not only in the persons ... move from one area to the next you have to know...how to do the task...because my division might have liked it that way...you don't like it that way and while you doing it the way you accustomed to you might be upsetting...somebody....I think orientation is important and do not take for granted..” (27)

From the users within the branch division, there was a slight difference in the way in which the implementation was carried out. In the second site, there was a delay in the removal of the old system when the new system was installed. A respondent explains,

“...new phones were brought in and we still had the old phones on the desk; everybody chose to use the old phone to continue even though we knew it will improve efficiency ... because you're accustom to doing something a specific way you'll continue. Now when those old phones were removed... I mean at the time when it was there, both phones... ... yes we heard of the benefits but to utilize it,...was another story”(45)

Getting individuals to act even when they are aware of the possibilities appears to be a challenge. This example does confirm that the learning strategy was useful; the degree of usefulness still remains a question. At the headquarters, however, the results,

“.... now when the old phones were removed I mean everybody was

forced to use the new phones and I mean that's when we were wondering ... this thing is simple; so it depends on the mindset, having the right mind set can make a difference.....”(30)

highlighted a few factors at play as well which included prior knowledge of what was known before and the reluctance to change.

Mia a syllabus officer, in reference to prescriptive training, argued,

.... by the time I can come on board and use it or so I would need to be retrained... . to me training is working with the thing you get (referring to technology)... most of these things are user friendly... you don't need to take me through a 2 or 3 hour session to go through all of that with me... the best training is actually... working with the thing and you understandyou have somebody trouble shoot with you ..or something to me that's the best thing...(17)

Bev an officer in the business development division saw the value of the solution in her work processes and stated,

”... with the new unified communication system and my laptop or cell phone I can now access my desk immediately and I can respond to queries. I could tell who called and if it is a very urgent.... I can return a call immediately so... we can service our clients in a more efficient and effective way...”(35).

Generally, the need for both prescriptive and emergent learning layered with an AC process approach appears to increase the effectiveness of both levels of learning. A few respondents captured these issues succinctly supporting the need for prescriptive learning with, “...training.., training...” , and one referring to emergent learning,

“...not just the hands on thing, but even the little discussions downstairs. I think that's really has made the transitions we're going through pretty easy. And being able to talk between each other, why it is affecting our particular area of work. Not only training but being able to talk things through between those of us that are affected by it that has been a big help ...“(3).

The effective use of the OC for the organisation overall was successful because of cost effective factors. Using the full scale of the OC was indicated by Bev who remarked, “...I wanted to work differently, and the technology was there so I wanted to see what it could do...”(35). This initial reaction to OC is not typical of the responses from the respondents

external to ISD. However, a hint of creativity, is evident, the move to innovation is still unsure, but certainly a lesson in attitude is exemplified here.

SUMMARY

This Chapter addressed the qualitative and interpretive data analysis employed to determine the findings of this investigation. A grounded analysis was used so that the voices of informants were more audible. The value of memos in the analysis provided the opportunities for reflection throughout the investigation. A within case analysis was used to guide the investigation into manageable proportions. This was followed by a cross case analysis, providing opportunities for theoretical analysis and deeper sense of what was happening within and between divisions in the organisation. The background to the case was described and the events related through the experiences of the informants were explained.

The case analysis followed an emergent path with attention to triggers and how and why this occurred as it did in Aquacon. The focus on individual action related to triggers and prior related knowledge were explored. The additional relationships with these antecedents and the influence on the exploratory learning were also explained through the perspective of the informants as the new knowledge moved through the organisation. The recognition of the value of new knowledge and reasons to seek new knowledge was linked to the interests of individual actors. As a result and based on the hierarchical design of the sample, power and political elements also played a part in at this stage.

Exploratory learning overlapped into assimilated and transformative learning and provided an internal divisional view. The nature of new knowledge and the role of the division in terms of responsibilities continued the underlying power and politics theme. This was also related to the quality of knowledge. Maintaining and activating knowledge was also given attention as well as reflection and critical reflection. The distinction between these two states of reflection influenced the process in determining assimilation or transformative learning.

Exploitative Learning was seen through other forms of learning. Emergent and prescriptive learning strategies were engaged in the explanation of the relationship between the dimensions as well as other forms of learning occurring simultaneously within the organisation. The reasons for a few examples of innovative behaviours were described and clarified.

CHAPTER 6: DISCUSSIONS AND CONCLUSIONS

6.1 INTRODUCTION

The interpretations of the findings are explained in relation to the research problem outlined in Chapter 1. This is given attention in terms of the extent to which the aims and objectives of the investigation have been met. This discussion will explore how the findings support, challenge or provide new dimensions to the theory of AC in organisations. Specifically, in relation to the AC process relevant antecedents and dimensions, including exploratory, assimilated/transformational learning and exploitative learning as well as the power and political influences are discussed. This investigation provides original contributions in terms of levels of analysis, a focus on the individual perspective and particular use of assimilated and transformational learning which is discussed in detail. The actions and interactions of individuals who direct and monitor the AC process through the metaphorical new knowledge (strategy) are realized and also given attention. The qualitative approach is also a contribution to the AC process in that few studies have taken this route as the field has been dominated by quantitative measures (Easterby-Smith et al. 2008a; Van Wijk et al. 2011).

The contribution to the AC theory is described by outlining the implications of study in terms of the theoretical contributions to the field. These implications related to the AC process for example, the way in which the internal dimensions are related and other influences such as the entities involved and the conditions under which they may do so. The theoretical implications for findings for the AC process are discussed and recommendations outlined. The practical implications for managers and practitioners are also addressed with recommendations that consider the alternative perceptions from within the organisation. The limitations of the study are outlined in terms of methodology as the theory is investigated through methods and researcher influences. To conclude, further research and development of AC and connections to other fields of study are explored.

6.2 MAJOR RESEARCH FINDINGS

This investigation has examined the underlying influences of absorptive capacity in terms of information and knowledge flows in a social organisation. A case study was used to delve into the assumptions and underlying structures within the organisation that may have influenced AC. The major findings outlined are related to results with a focus on the effects of levels of analysis of AC process, the dimensions of AC, as well as nature of knowledge, and antecedents of AC.

Triggers

The major findings of this investigation at the individual level support the view that individual action (Cohen and Levinthal, 1990) and interaction are a basis of AC. This view assists in tracing the flow of information and knowledge through an organisation. Through this perspective the investigation found evidence to suggest that triggers may be heavily influenced by actors initiating the AC process. This also means that triggers (Lane et al. 2006; Zahra and George, 2002) may also define the nature of new knowledge entering the organisation. At different levels of analysis, triggers occur and operate in different ways. As a consequence, individual AC (Cohen and Levinthal, 1990; Van Wijk et al. 2011; Volberda et al. 2010) seen through actions are triggered as individuals enter or respond to triggers.

Triggers operate differently at various levels of analysis, since new knowledge is introduced in different forms at different levels of analysis. In this scenario the concept of power supports the ideas of Foucault (1980) where the individual influence on the trigger in the AC process are embedded in the roles that actors play in the organisation. In navigating the power relations associated with these roles in the organisation, political aptitude also becomes necessary throughout the entire process, from the initial conception for effective change to occur. As new knowledge moves within the organisation, roles and responsibilities provide an opportunity to exercise power through interaction with new knowledge. The negating element of politics is not used at this stage and that signals a potential difficulty for the AC process when the appropriate combination of power and politics is not employed in a timely manner.

Levels of Analysis

Investigating AC through different levels of analysis (Cohen and Levinthal, 1990; Van den Bosch et al. 2003) emphasizes the behaviours in the AC process. Through this alternative lens the findings suggest that AC emergence is not supported by a sequential notion at the organisational level (Lane et al. 2006; Zahra and George, 2002). Rather the findings support the argument made by March and Levinthal (1993) for the simultaneous and competing forms of learning occurring in the organisation.

This adds to the value of analysis at different levels of the organisation as the process of AC may appear to be unpredictable at these levels. AC processes may also provide opportunities to realize the various forms of learning operating within the organisation. The AC process initiates other forms of learning, based on breaks (when new knowledge enters the organisation) in the sequential process at the organisational level. With learning occurring simultaneously, the balance between power and politics in context may affect AC as well as other forms of learning. In this study, the AC process was initiated through the organisational level in the form of the CEO. From the individual level the fluid notion of power (Foucault, 1980) is initiated. The social and communicative structures in which power and knowledge need to function (Habermas, 1990) are influenced sufficiently to affect the movement of AC within the organisation. In addition, more liberated power relationships where skillful politicking may provide support are not evident throughout the organisation. There are few examples which are largely obscured by layers of control and compounded authority. This in turn affects the nature of change.

Prior Related Knowledge

The findings suggest that prior related knowledge relies heavily on individual memory and moves away from the common characterization of the latest scientific and technological advancements (Van den Bosch et al. 2003). It continues to be a major determinant in influencing responses to AC based on experiences from different levels of the organisation. The nature of the new knowledge as well as prior related knowledge is important in the response from individuals who focus on past experiences which affect response to the AC process. The findings suggest that prior related knowledge appears to be largely tacit and associated with negative actions and interactions of past organisational events. This is contrary to the R&D environment where prior related knowledge was based on explicit information and knowledge stored or used by a

particular organisation (Cohen and Levinthal, 1990; Van den Bosch et al. 2003; Levin et al. 2011) which defined AC as it has developed.

The conception of prior related knowledge was based on assumptions of R&D (Cohen and Levinthal, 1990; Lane et al. 2006; Van den Bosch et al. 2003; Volberda et al. 2010) and explicit knowledge bases. This finding may be connected to the social organisational context, where the value of content is minimized and the relationships that guide knowledge sharing influence the AC process. There is another factor as power and politics are also emphasized as a result of this alternative perspective. The view of the concept of triggers affects how prior related knowledge operates within the various dimensions of AC as individual memories are brought to bear on the AC process at different times and stages of the process.

Dimensions of AC

Through the relationship between elements of the three dimensions (Exploratory, Transformative, Exploitative) of AC, the findings suggest that the distinctive nature argued by Lane et al (2006), Zahra and George (2002) and more recently, Van Wijk et al (2011) is more obscure when viewed from the individual perspective. These two perspectives contribute to an aggregated understanding of the relationship between dimensions.

Exploratory Learning

Exploratory learning first in terms of information seeking is highly influenced by the trigger of the AC process and the nature of new knowledge. The metaphorical strategy as new knowledge provided an opportunity to focus on the knowledge flows in relation to the reactions to the new strategy. Information seeking is isolated to the divisional level of analysis and individuals tend to seek new knowledge in response to the new strategy so that legitimacy can be established. Recognising the value of new knowledge is influenced by power and affects the AC process in terms of who recognises and says it is valuable. This is also a continuation from the triggering stage. The quality new knowledge was determined by what was deemed believable and what was presented and by whom. Time is a powerful instrument at different levels of analysis and can slow down the AC process which compromises effectiveness. The process of AC is influenced by underlying organisational structures that maintain order and operational processes that are also underscored by power and political interests. Exploratory learning is the most significant dimension which determines the nature of new knowledge and the possible

ways that the other dimensions will be played out. Other forms of knowledge that guide the fundamental process of the organisation form tensions with technology.

Assimilated Learning

The findings confirm the theoretical notion that Assimilated and Transformative learning are two distinct processes (Todorova and Durisin, 2007). They also suggest that the two processes find their distinction through the exploratory stage (Merizow, 2009), and may overlap. Findings suggest that assimilated learning facilitates change and transformative learning is more closely associated to innovation. Findings suggest a relationship with basic reflection can result in assimilation. Reflection is a necessary condition for learning to occur (Merizow, 2009). However it is not a sufficient factor for innovative behavior. This challenge is also associated with time. Absorption is challenged by time and daily pressures of work deadlines. From different levels of analysis the individual can exercise power (Foucault, 1980) of time to slow down the movement and absorption of new knowledge. The dissensus view (Schultze and Stabell, 2004) provides a realistic glimpse into the varied political interests (Marshall and Brady, 2001) as AC occurs throughout the organisation.

Transformative Learning

The findings suggest that Transformative learning is more likely to encourage innovation (Todorova and Durisin, 2007), when critical reflection (Mezirow, 2009) is employed early in the AC process specifically, the exploratory stage. Innovation is realised through the exploitative stage although seeds are sown in the exploratory stage and are not necessarily visible. Another condition for transformative learning leans to the perception and actions of individuals exerting power in a liberalized environment. This liberalized perception may not be the experience of all individuals within the organisation. A necessary condition appears to be where an individual is positioned within the organisation in terms of authority. That authority may emanate from the nature of new knowledge if it falls in line with the strategic direction of the organisation. In addition, from an individual perspective, when the dimensions are more intertwined, it is more likely that innovation may occur.

Exploitative Learning

Exploitative Learning is determined by the previous processes and can reveal the process of change through other forms of learning. The planned actions for change (Lane et al. 2006) are depicted through two other forms of learning used to facilitate those actions for change. The findings introduce other forms of simultaneous learning (Levinthal and March, 1993). Prescriptive and emergent learning direct the focus to more complementary learning strategies that can facilitate AC, rather than the competing conception offered (Levinthal and March, 1993). Critical realist approach revealed the various structures (positions, goals and history) within entities such as the organisation to understand the AC processes. Through the emergence of AC processes, emergent and prescriptive learning provide a real and practical example of training which were derived from the metaphoric strategy. The findings suggest a form of layering of learning as it is through the AC learning process that other forms of learning can be defined as for example, training. Another significant factor was the timing of training which is a major hindrance when simultaneous learning is occurring.

6.3 DISCUSSION OF MAJOR FINDINGS

6.3.1 INDIVIDUAL ACTION AND INTERACTION AND AC TRIGGER

As indicated by a few researchers (Cohen and Levinthal, 1990; Easterby-Smith et al. 2008a; Jones, 2006) individual action and interaction is a basis of AC, which facilitates the flow of information and knowledge through an organisation. Through this perspective the investigation found evidence to suggest that actors may influence triggers of AC process. The literature characterized “triggering” of AC from an organisational level (Lane et al. 2006; Zahra and George, 2002).

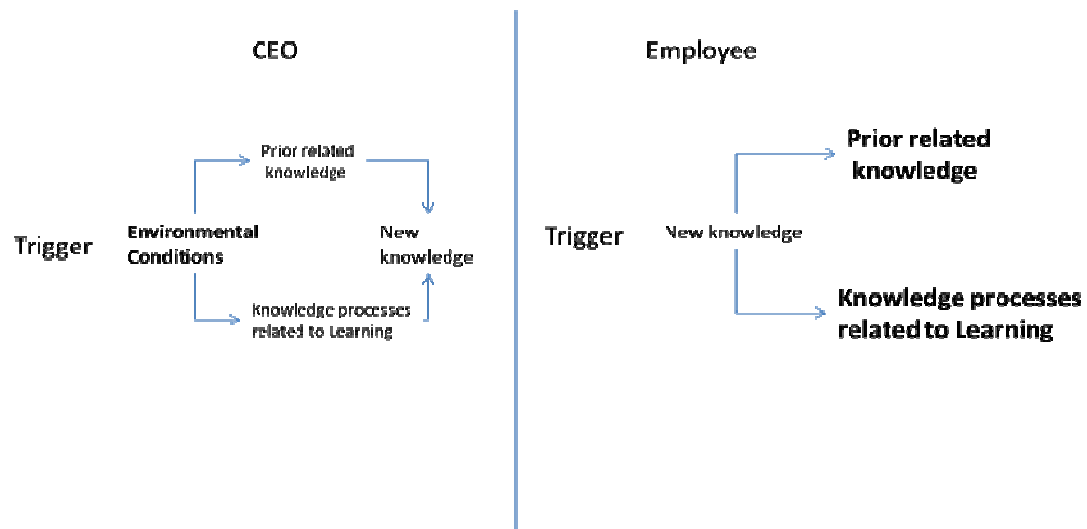


Figure 13 - Triggers from different perspectives

This diagram shows the difference in perspective of what a trigger may be to different individual. The CEO and the employee are used as example to demonstrate the nature of the perspectives. This view point relates to where the trigger may be before entering the organisation and who is also directing it.

This investigation builds on this ‘triggering’ feature and the individual influence in this event is emphasized. The trigger for AC process is initiated by an individual, and in this case the CEO who directs the organisational response to external conditions of the organisation. At this level of analysis, the CEO employs his frame of reference to interpret new knowledge, and the external conditions. Some forms of prior related knowledge of the organisation are not employed according to the views of some informants in the development of the new strategy that initiated the AC process. This leads to participants feeling “left out” and there is a reluctance to participate in the change process. This hinders the AC process. The trigger is reinvented for each individual with their own frames of reference, which may not include the wider understanding at the organisational level. However, they also participate in a form of triggering so that they

can participate in the AC process, even though triggering at that level is limited to an established new strategy. The question remains: Which forms of prior related knowledge may or may not be more significant and under what conditions do they increase the absorption of new knowledge?

Individual frames of reference may emphasize different elements of the trigger stage. Figure 12 shows an interpretation of the trigger stage and elements (Lane et al. 2006). The emphasis changes for individuals at different levels of analysis. AC elements also change to indicate the emergence of AC process. New knowledge is reinvented as the triggering conditions change as it moves within the organisation. Therefore a trigger for one individual may not be the same for another. This also may mean that reactions to different forms of the trigger may be varied. This variation influences exploratory learning in directing the locus of information seeking and recognizing the value of the new knowledge.

Triggers may also influence the nature of new knowledge entering the organisation. The individual influence at this stage of the process view demonstrates the conspicuous presence of actors in AC. The experiences shared by the CEO and employees, painted a picture that indicated the planned actions of the CEO. The CEO assessed the environmental factors, his prior related knowledge, and created a largely technology based strategy which this investigation used metaphorically to illustrate, and focus on the subject of AC. This abovementioned factors are consistent with the extant literature which states that these factors are necessary for triggering of AC (Lane et al. 2006; Walsh and Ungson, 1991; Winter, 2000). The CEO is important in the development of the new strategy and implementation. The mitigating factor is rooted in the emphasis on external elements which minimized the internal concerns such as prior related knowledge which can be seen as a significant factor from the employee perspective. The addition is the influence of the CEO to the process and the resulting development of a new strategy to be rolled out in Aquacon. This also shows the need for emphasis on what other individuals in the organisation find important as the figure demonstrates; they flow with varied concerns and importance. In promoting the integration of the new strategy, individual views may be valuable at early stages in the AC process.

Triggers operate differently at various levels of analysis, and individual perceptions emanate from limited awareness. This personification sheds light on inquiry into the nature of the deficiency that the AC process intends to fulfill. The development of the

strategy was in response to the state of the environment and can be seen as a manifestation of the trigger. This first stage of the AC process which according to the process view will be tempered by organisational external and internal knowledge characteristics as well as learning relationships (Lane et al. 2006; Todorova and Durisin, 2007) are ideal conditions. The individual as a factor in this scenario suggests that all these factors are not addressed equally. The findings suggest that the CEO as the initiating link from the external environmental conditions which triggered new knowledge (new strategy) to enter the organisation, established the subjective nature of the process.

In developing the new strategy, the new CEO did not incorporate sufficiently, the learning relationships and state of organisational knowledge abilities. This is contrary to Lane et al (2006) assumption that prior to the exploratory learning phase the CEO also understood the impact of knowledge characteristics and the learning relationships. Therefore at the individual interaction level AC is compromised by a myriad of learning activities.

The concept of power is embedded in the process through individuals and the roles that they play in the organisation and the connection to the AC process. The new strategy which was influenced by the interpreted trigger, established control over what individuals responded to and legitimizes the new knowledge strategy. Easterby-Smith et al (2008a) suggest that two forms of Foucauldian conception of power (episodic and systemic) are evident in their research. This is related to the argument that power and politics have largely been ignored by organisational learning research, particularly when politics is embodied in organisations (Lawrence et al. 2005). Therefore, existing theories do not represent the reality of what is happening in organisations. This investigation confirms these conceptions of power, and adds that the decision not to act is also a major factor. However, the acute nature of systemic power may neutralize episodic acts, for the most part in highly structured organisation. There were initial activities in promoting the new strategy; however, informants indicated that they felt removed from the entire process and participated merely to maintain their positions.

The CEO appears to embody both episodic and systemic powers (Foucault, 1980). Doolin (2004) argues that knowledge sharing is more about control and the decrease in power from the less powerful appears to be exercised by many of the informants. The CEO may balance a number of issues emanating from his role, to the flow of knowledge and learning processes in response to the NK/strategy. The potential power inherent in the head of the organisation may benefit from wielding political skill to promote the new

strategy. The power of the workers who focus on their own interests and “work to rule” effectively restrict the extent of the AC process. This may mean acknowledging the internal knowledge that informants argue was already with the organisation. The influence of individuals in specific positions affects AC movement throughout the organisation. The focus on exercising power almost to the exclusion of the impact of these relations minimized the role of politics, and hinders the AC process. A more politically emphasized approach in a social sector environment such as this setting may increase the AC process. Persuasion through an understanding of the ideas of workers integrated into political mechanisms complement the potential power entrenched in the hierarchical composition of the organisation.

It is noted that Cohen and Levinthal (1990) argued that effectiveness is not determined solely by the gatekeeper. The individual view provides a response to a continuous triggering of AC within the organisation as the locus of interaction of the AC process emerges through units. Jansen et al (2005) refers to AC trigger through the unit level and is silent about the precise action or reaction of individuals. The significance of the trigger assumes a different role when viewed from an individual perspective. From an individual perspective, the trigger refers to different stages of the AC process at different levels of analysis as seen in Figure 12.

This investigation extends the work of Jones (2006) who argues that the source of an activation trigger will influence the locus of information seeking of new external knowledge while the intensity of the trigger will influence the inputs in developing acquisition and assimilation capabilities. This argument also influences what new knowledge is recognised as valuable. In addition, the AC process initiates and adds to other forms of learning occurring in the organisation. The tension between the “new knowledge” from the CEO perspective and those within the organisation see as “nothing new” indicates the potential breaks in the cyclical and sequential AC process articulated by Lane et al (2006).

6.3.2 LEVELS OF ANALYSIS

The backdrop to this entire investigation also includes the levels of analysis which shape the results. The concentration on AC at the level of individual action, and how relationships between individuals create the unit AC; as well as how inter-divisional relations create organisational AC, has delved deeper into a further understanding. This deeper view affected the understanding of organisational AC through the perspective of many participants in the process. From the predominantly organisational level view of

AC the cyclical and sequential conception (Lane et al. 2006; Zahra and George, 2002) is maintained; however this investigation questions this at the other levels of analysis.

At the level of individual action and interaction, some individuals were learning simultaneously, but were focused on different forms of learning. For example some were at the exploratory stage, while others were at assimilated learning stage. Individuals stated that they reflected on their work in relation to new knowledge and others said they did not due to pressures of time or due to the perceived lack of initial involvement in the process. At the divisional level, while one division was guiding the assimilated learning of the OC, to support this implementation, the IS department returned to the exploratory stage to determine how to provide effective help services. These are indicators of a myriad of learning activities that spiral and add to the challenge of learning in organisations.

While Matusik and Heeley (2005) state that an organisation's AC consists of an individual and a collective dimension, the extant literature with a few exceptions (Argote, 1999; Jansen et al. 2005; Jones, 2006; Easterby-Smith et al. 2008a) has explored antecedents on the collective level (Volberda et al. 2010). Although this investigation has shed light on this gap between individual interaction, and division or unit level, this view of the AC process, shows the different phases of AC that are occurring simultaneously. This is similar to the findings of Levinthal and March (1990) concerning the various types of learning occurring in the organisation. This was demonstrated when the IS division returned to the exploratory phase after initiating the implementation of the OC and simultaneously directing the assimilation phases of other divisions. For AC to occur, individual levels of analysis as well as organisational levels need to be actively integrated in the process. Organisational level of AC is a necessary condition for the process to occur, hence the significance of the CEO. However, this is not a sufficient condition for AC process to be effective as individual AC at different levels of the organisation provides opportunities for restraining the process. Therefore effective communication (Jansen et al. 2005) is a core element that underscores the relationships between the elements, processes and dimensions of AC.

This implies that the sequential nature of AC process (Lane et al. 2006; Zahra and George. 2002) is not supported. However, if the view is at the organisational level, the argument is plausible. The sequential notion which represents the occurrences of AC throughout the organisation misrepresents the activities that shape AC, and creates the

fallacy, of reducing learning to the sum of its parts (Cohen and Levinthal, 1990; Guber, 1991; Levinthal and March, 1993). This gives rise to questions of what elements of the AC process is reduced to determine the organisational view? What individual actions are seen as representative of the organisation? Is the organisational view a sum of who and what elements of the AC process conforms to the strategic goals of the organisation? This conception that AC changes emphasis at different levels of analysis raises a critical question about the composition of the organisational view for example. Viewing AC through different levels of analysis also increases the visibility of the emergence of AC.

The view from various levels of analysis provided an opportunity to observe the episodic use of power at several levels. The common act of individual sharing in a relaxed, or comfortable environment, is a strong indicator for innovation, but not sufficient. However, the critical aspect is another condition that affects attitudes to knowledge and criticism with a constructive and healthy focus.

AC process is affected by the power and dominance of one division over another at the organisational level. This dominance may have negative effects in cases where the responsibility of the particular division is pivotal in another stage of AC between divisions, as seen with the help desk. The use of power by one division engages resistant behaviours and caused the increased and unnecessary utilization of the “help facility”. This overuse frustrates the informants in the IS division, who believe that they are not adequately trained. The focus on the exercise of hierarchical power to direct the AC process may have caused the widespread initial negative reaction to implementation of the OC. Power relations may have benefited from an increased use of politics to encourage a more collaborative activity with employees more willing to cooperate more fully. This focus on the levels of analysis reveals intricacies that have been invisible and termed the black box (Zahra and George, 2002).

6.3.3 INDIVIDUAL, PRIOR RELATED KNOWLEDGE

The focus of this investigation on individual action leads this discussion into the link with the trigger arguments and prior related knowledge that influences the development of new knowledge. As explained, the influence of the CEO on the development of the new knowledge/strategy that has been established in preceding paragraphs and connects the idea of individual memory and prior related knowledge. As corroborated by participants from inside the organisation, the nonuse of maintained knowledge (Lane et al. 2006;

Lichtenthaler, 2009; Zahra and George, 2002), suggests a heavy lean on the CEO's prior related knowledge, which does not have the benefit of internal knowledge. Individuals responded in a number of ways, including, accepting the change and participating, reluctance at first and eventual participation, as well as resisting completely "dancing all around it" and "just waiting for him to go". The position held by one of the resisters may affect the AC process, for example a head of division with a critical role to play in the process. Note that all of this is done within the structure that defines the rules of the organisation. One informant admits, that the idea behind the action is just enough to frustrate, but not enough for someone's job to be terminated. In this case AC is not about whether an outcome will occur, but to what extent, and in relation to the time taken to achieve this objective.

There are two missed opportunities for the cumulative learning AC process. First the participation of individuals from early in the process in perusing ideas that already exists in the organisation. Secondly, from other levels of analysis, there is a sense that a targeted effort for the continuity in learning at the organisational level is reinforced. This also connects to an idea about how the organisation knows and retrieves prior related knowledge if at all. The assumption of explicit knowledge as the de facto measure of prior related knowledge again emphasizes the complexity of interaction of the continuum of tacit and explicit knowledge (Snowden, 2005).

This is contrary to the focus that had dominated the literature on content related knowledge bases (information/explicit knowledge) related to organisational memory (Van Wijk et al. 2011; Volberda et al. 2010). There is a high level of tacit knowledge in the Caribbean context where the researcher through experience acknowledges a history of lack of documentation. There is a general agreement to the merits and ideas of the new strategy. Organisational boundaries and knowledge boundaries may not be the same and may create tensions (Argote et al. 2003; Lichtenthaler, 2009). Prior related knowledge appears to be linked more to the argument by March (1991) that decisions are not made based solely on evidentiary information on which knowledge may be based. Prior knowledge based on individual memory can inhibit change processes. This is contrary to the assumption of prior related knowledge related as a "stock" (Cohen and Levinthal, 1990; Lennox and King, 2004) which suggests a knowledge base as the common measure of AC in terms of R&D (Lane et al. 2006; Lewin et al. 2011; Volberda et al. 2010). The power and political treatment of knowledge, is not content-related. The accounts from informants indicate a reliance on other individuals and the legitimacy related to positions

of power within the organisational structure. Reactions which compromised knowledge absorption could benefit from functional politics (a concerted effort to consider the reasons for the resistance to facilitate change) which are compounded by the exercise of authority that permeates the organisation. A tempering factor such as politics to persuade and nudge in a power focused setting may be useful to ensure the effectiveness of interactions at various levels.

This has repercussions for exploratory learning and the domino effect on whether new knowledge is assimilated and or transformed. Through the trigger and development of the new knowledge entering the organisation, AC process has already been preconditioned for assimilation rather than transformative learning. The development of the strategy which is supported by the high levels of control within the organisational structure (Van den Bosch et al. 1999) has predetermined the levels and possible forms of learning, hence assimilation. The example suggests an agreement to the argument by Todorova and Durisin (2007) that either assimilation of transformative learning may occur. The distinction will be discussed later on in the chapter. Further investigation into the flow and ebb of new knowledge as it mutates through AC dimensions may increase an understanding of the construct.

In slower environments, for example as in the case of this study, the proliferation of information, knowing how to get it and how to deal with and present it may require the investment in information literacy to encourage participation in exploratory learning. The negative feedback loop argued by Van den Bosch et al (1999) and Todorova and Durisin (2007) rises out of the mismatch and misunderstanding of new knowledge and the forms of learning present in the organisation. Power relations and knowledge sharing require further investigation in tacit concentrated environments. The activities associated with seeking, evaluating information and knowledge, by individuals promoting new knowledge and those who are supposed to absorb, may differ in their information and knowledge related habits.

6.3.4 EXPLORATORY LEARNING

Exploratory learning in terms of information seeking is highly influenced by the trigger and the nature of the new knowledge. The metaphorical strategy as new knowledge provided an opportunity to focus on the knowledge flows in relation to the reactions to the new strategy. The process of AC is influenced by structures that are highlighted through power and the concentration of new knowledge. Other forms of knowledge that guide the fundamental process of the organisation form tensions with technology.

Information seeking

According to respondents, the information seeking (Choo, 2002) activities are defined by the new strategy. Informants indicated that they searched for information or held discussions in relation to what was expected from the strategy and in relation to their specific divisions. The information seeking forms part of the exploratory learning process in a number of ways. First in this mode informants have an idea of what they need to know in relation to the strategy. The difficulty may be in articulating it and knowing the appropriate way of presenting. Within divisions, and between individuals who work in close proximity, there appears to be a confirmatory conversation to assist in validating the potential value of the response to this new knowledge. In some cases, respondents extend that verification outside of the organisation, as the example given with the podcasts. This scenario qualifies Jansen et al (2005) in their proposition of the critical value of social interactions in the AC process. The interactions though are focused in environments where the response may be supportive and not necessarily constructively critical, as colleagues and friends are asked to verify an idea. These actions question the connection to the critical element necessary for transformative learning to occur which begins in preliminary information seeking stages.

Information seeking in terms of exploratory learning, and according to March's (1991) summation, is directly contrary to the intention of information theory that is to gather information to provide alternatives in solving a problem. This suggests a preference for assimilated learning as learning is compromised when problems are not solved but rules and copying of solutions are the norm. With the plethora of information and knowledge available through current technological opportunities (Cross, 2007), there are more points of entry for knowledge entering an organisation than ever before. The focus now moves to how new knowledge is recognised as valuable.

The respondents indicated that they shared new knowledge; however, there was still need

to improve to be more effective. In addition, the depth of knowledge sharing is not fulfilled as stated by the CEO, which raises the issues of information and knowledge quality as well as the extent to which the depth, breadth and scope of knowledge flows (Gupta and Govindarajan, 2000). This also questions the process of critically reviewing new knowledge. This argument suggests that the critical element to consider is how the a development into assimilated or transformative learning is negated. This finding suggests support for Tordorova and Duirisin's (2007) claim of an alternative between the two; however, the term alternative suggests one or the other. The fluid nature of knowledge and in light of the findings so far, a more appropriate term may view knowledge along a continuum between assimilation and transformative learning. This continuum may be dependent on critical reflection which should begin during the exploratory stage.

Individual Influence – recognizing the value

The individual influence in the AC process adds to the understanding of the construct. This investigation integrates the organisational structural positions articulated by Zahra and George (2002), through the design of the study when positions of influence were also considered. In these investigations, the organisational arrangement (position of individuals divisions within the organisational structure) will be discussed in the section on assimilated and transformative learning. The layered approach provides an additional understanding through the relationship of established organisational characteristics outlined in the literature such as power (Easterby-Smith et al. 2008a); communication (Jansen et al. 2005); boundary spanning (Cohen and Levinthal, 1990) and training (Matusik and Heeley, 2005; Minbaeva et al. 2003) to name a few. For example, within the process of knowledge sharing, although formal mechanisms exists, the extent to which they are used is determined by the individuals who perform within it at different levels within the organisation. Organisational characteristics, affect new knowledge as it emerges through those structures and influences the extent of assimilation from one level to another.

The metaphorical strategy plays a critical role, as it defines and confines information and knowledge processes, and creates grounding for knowledge and power relations. As the new strategy emerges, through the organisational structure senior managers in support of the CEO promote it to other employees within their divisions. The Heads have a vital role to play in this process, and can stall the emergence of the strategy. Power of the

strategy promoted by the CEO is thus passed on to the Heads of the divisions. If the political element is not engaged sufficiently, this influences the ability of the heads of divisions towards a tendency to interpret for assimilation rather than transformative processes. The movement of the new knowledge activates the multilevel approach to AC through organisational characteristics. The complexity of AC is realized as filtering of the new knowledge is now interpreted by nine different heads of divisions with independent and dependent responsibilities. The approach employed to interpret the new knowledge within divisions is a pivotal stage for the message to continue to effect change in the AC process. This approach guides the actions of the individuals in divisions and the way in which they respond. The AC process also depends on trust as the CEO relies on the actions of the Heads to filter throughout the organisation. The undeniable value of communication and sharing of information and knowledge is also an “achilles heel” within the organisation. Essentially, when communication and information are not employed to the advantage of the AC process, then learning is compromised. There are many channels for communication, as one informant stated that she relied on gossip, because she did not trust the formal channels within the organisation.

In a context where information and knowledge appears to be limited alternative methods were sought in reaction to “need to know basis”, which are control methods used by some Heads of divisions. Once again power which is rooted in the organisational structure (Van den Bosch et al. 1999; Yayavaram and Ahuja, 2008) is reinforced. In response to this informants lean on and trust the grapevine which appeared to be more reliable and effective and circumvented the formal communication process. Individuals employ evaluative methods of information and knowledge emanating through the grapevine and this indicates that information or knowledge skills were employed in assessing the resources from the grapevine. The exploratory stage is already hampered when practical and informal knowledge flows are not taken into consideration. As the literature has focused primarily on the acquisition of new information and knowledge, this investigation adds to the literature in terms of how the information and knowledge enters and how it flows.

Prior related knowledge of the communication or social mechanisms (Jansen et al. 2005; Zahra and George, 2002) are very apparent in this investigation and shows the extent of the complexity and futility of controlling information and knowledge flow almost to the exclusion of persuasive tactics. This investigation contributes to the relationship of prior

related knowledge at the initial stage of AC. The interplay of control on one hand, and openness on another, need to be reconciled within the AC process particularly at the exploratory stage. The interaction of intra organisational elements such as internal mechanisms and antecedents such as prior related knowledge and the nature of the integration in the exploratory phase of AC has so far been overlooked (Van den Bosch et al. 2003).

The decision to highlight “recognizing the value” (Cohen and Levinthal, 1990; Lane et al. 2006; Todorova and Durisin, 2007) element of the AC process under the exploratory stage proved to be important as data show how connected the individual and positional roles influence the “value of new knowledge”. Decisions to share or not to share new information and knowledge are highly personal and as informants indicated it is not for the benefit of the other person but, primarily theirs as they think in terms of their perspective. The organisational structure reinforces this through the focus on confidentiality, security and secrecy, formal and informal mechanisms. This is further compounded by the communications issues mentioned above.

Gatekeepers and boundary spanners are important in the AC literature (Cohen and Levinthal, 1990; Easterby-Smith et al. 2008a; Jones, 2006). The proliferation of information and knowledge due to technology and access to the electronic resources (Cross, 2007), create a very difficult environment for evaluating the quality of new information and knowledge. The strategy may create that framework to determine and control the direction of exploratory learning as the majority of respondents indicated, they respond to the strategy. In addition the nature of the strategy also creates a dominant expertise that verifies and directs the path of the organisation, which is specific to technology integration. There is a gap between knowledge of the processes and the technology that can improve it. This gap exists because difficulties with individual actions create a lack of understanding on the part of those with technological expertise and expertise of established processes.

In this investigation technological gatekeepers are important. They are seen as the primary instruments in directing the absorption of the technologically centered strategy. This responsibility requires skillful communication techniques which do not appear to be evident in the inter-divisional interactions. However, the reverse is evident within the IS division realizing contradictory intra divisional actions. The open communicative environment within the division and the high level of exploration appears to be consistent

with the team approach to solving problems. This however does not extend beyond the division. The change is difficult to determine as there are two forms of learning intersecting, exploratory and assimilated, and they are operating at two different levels intra-unit and inter-unit. This relationship requires further investigation.

The social aspect however has been clearly overlooked, hence the nature of the interactions realized with other divisions. This adds to how various types of gatekeepers (Lim, 2009) at different levels and divisions of the organisation influence knowledge flows. This is a major hindrance to the AC process. This investigation finds that that in different environments where the purpose of the organisation is for profit or social good, the values vary. The behavioural, power and political influences are more apparent because profit is not the ultimate driver, which also influences the triggers and the responses to the triggers.

As indicated by Lewin et al (2008), individuals in positions are factors in how new knowledge, enters, transforms and emerges through the organisation. In this study gatekeepers (Tushman, 1977) including the CEO, and IS and curriculum development divisions are dominant expertise in the process. The knowledge of the processes however lies with divisions with specific responsibilities. The strategy requires an appropriate integration or distribution (Easterby-Smith et al. 2008a) of technology and processes to respond to the external environmental conditions. This integration suggests a “meeting of minds” where the two sides address the same issues from different perspectives, framed by educational structures. Individuals with specialist knowledge may require a deeper understanding of their role as critical communicators (Murray et al. 2011) in the AC process.

An awareness of the unique interaction of organisational characteristics (a few mentioned above) may be a support to the AC process. This was not apparent in this investigation and showed a high level of frustration on the part of the IS informants. While learning to troubleshoot and teach users how to use the new office communicator, vulnerability on their part was also revealed. IS staff did not have adequate training to teach users how to use the technology. Simultaneous learning (Levinthal and March, 1993) occurred, triggering another form of learning, which redirects the cycle of learning for the IS division. Again, this suggests that the AC process may not be sequential, as indicated by the structural perspective (Lane et al. 2006; Zahra and George, 2002).

The nature of new knowledge

The nature of new knowledge in this investigation is directly related to new technologies and their integration into the organisational processes. Although Huston and Sakkab (2006) posit that external new knowledge requires further development in order to be exploited that intermediary process of assimilation and or transformation is a critical step. The integration of a new technology requires an understanding of the potential usefulness to the established process. The sharing of usefulness of new technology appears to take the form of a simple introduction of what technologies will be used. Contributing to the observation, Lennox and King (2004) suggest that the ability of managers to provide information and that of individuals in the organisation to assimilate is dependent on experience with related processes. A closer look at technology puts this into perspective.

The knowledge of the process lies with individuals in one division while the knowledge of the technology lies with others in another. Within divisions, the nature of new knowledge was informal and highly interactive when new knowledge is adapted through divisional processes. As the new knowledge leaves the division a formal process or in terms of technology training sessions are passed on to other divisions. Nature of new knowledge takes on organisational characteristics as it emerges. With the integration of new technology, changes to processes are also absorbed as a by-product of that integration. The logical conclusion is the exchange of the forms of knowledge for AC to occur. It is necessary to reiterate, that technology given power, due to the link to the strategy and the notion that technology will solve problems. This power appears to be a recurring theme in the Caribbean context, where technical knowledge, supersedes other forms of expert knowledge (Heeks, 2002). This observation gives rise to other assumptions and cultivates the domination of technology in terms of its value as an end result of a problem rather than a tool to solve the problem. Sustainability of integration processes may be additional measures over time (Ahuja and Katila, 2001) to determine the effectiveness of AC process.

The nature of new knowledge through this investigation is fluid and ever changing indicating the complexity of AC processes as well. In terms of quality knowledge was determined by what was deemed believable and what was presented and by whom. The quality of new knowledge was not determined by the information and knowledge in and of itself. The dominance of IT as a common thread through the Caribbean context, overrides the other forms of knowledge required for the organisation to learn effectively.

Issues of time

Time is a powerful instrument at different perceptive levels of analysis and may hinder the AC process, compromising effectiveness. The issues of time, timing of introduction of new knowledge and the effects on AC are very real in this investigation. The literature refers to speed (Todorova and Durisin, 2007), an element of “recognizing the value” and affects the assimilation and or transformation of new knowledge. In Aquacon, time and volume of work affect the ability to focus on AC processes, as indicated by respondents. Time also provides leverage at different points for individuals to exercise power as new knowledge emerges through the organisation. Time is the pivotal factor that creates vulnerability for the CEO when he depends on others in the organisation to ensure that new knowledge emerges quickly and effectively. The power exercised by employees, stalls the flow or interprets new knowledge in a different way so that the quality and speed of the emergence of AC is compromised. Functional politics may be an effective counter to this necessary process.

Functional politics plays a vital role in this scenario. The key to success may lie with a direct approach to power and politics, knowing precisely when to exercise either approach strategically. The acute awareness of power fluctuations throughout the organisation may reveal appropriate use of power and politics to increase the effectiveness of the AC process. The influence of power and political factors on the mutations in this suggests that the complexity of AC process lies in large part with the individual. This also refutes the assumption that acquisition alone increases organisations effectiveness as Brökel and Binder (2007) indicate through their research that knowledge transfers: intended (individual actively seeks knowledge) and unintended (individual comes across information and knowledge by accident) requires a rigorous approach for effective emergence. So far this case analysis suggests that in an effort to understand learning within the organisation (Levinthal and March, 1993) managers may need to accept the ying and yang (Bhaskar and Norrie, 1998) notion. This approach may encourage the AC process as the confines of the strategy and the organisational structure influences the extent to which assimilated and or transformative learning can occur.

6.3.5 ASSIMILATION AND TRANSFORMATIVE LEARNING

This investigation finds that transformative learning is more likely to encourage innovation, whereas assimilated learning facilitates change. Reflection on work processes and the value of new technologies were expressed by a number of informants and appears to be consistent with Mezirow (2009) who posits that reflection occurs within a defined frame. A few informants indicated that initially there was reluctance to the use of the OC. However, when the value of the new technology was realised in terms of reducing time to complete tasks, and facilitating quick communication, they reflected on potential ways that this technology could also support their other work processes. This reflection occurred within the confines of their work processes and in line with prior work processes. Transformative learning may occur at different levels of the organisation, but may not be apparent at the organisational level. Transformative learning is different from assimilated learning as it requires critical reflection from the exploratory stage (Mezirow, 2009).

There are a number of factors related to actions regarding “maintained knowledge” (Garud and Nayyar, 1994; Lichtenthaler, 2009). A few respondents indicated that the new knowledge was not new, and cited the challenges of persuading the previous CEO to advance this new way of operating, specifically integrating technology. The assumption of assimilated or transformative learning is a dependence on an activation of maintained knowledge (Lane et al. 2006; Marsh and Stock, 2006). However, this study suggests that in some cases though the knowledge was maintained but it was not reactivated. Informants indicated that they were not approached to contribute to the AC process at an early stage. What is promoted as new knowledge was not new to them or the organisation. In the past, the challenge was to garner support for change. Under previous management legitimacy and authority of this knowledge was not established which may have led the new CEO to enter the organisation with “repackaged” new knowledge.

With the previous CEO, power through legitimacy was instrumental for the advancement or not of new knowledge. This approach continues with the current CEO who now makes technology a priority, however as disputed by some informants, without the benefit of internal knowledge. Remembering that internal knowledge may be useful to the new strategy requires an ability to bring it to the attention of the CEO, which elevates the value of the political element and communication mechanisms in the organisation. Determining the quality of this maintained knowledge for action is another factor considered. There are still questions about who remembers that this “maintained

knowledge” exists and when and why to reactivate it is debatable. The inability to act may have provided the basis for the new CEO to assume that this knowledge did not exist within the organisation. A tendency towards Foucault’s (1980) fluid and inseparable view of power and knowledge is demonstrated. However, an understanding from the CEO of the “maintained knowledge” negotiated (politicking) by acknowledging the existence and then incorporating it into the new strategy may have increased the success levels of AC processes.

The study questions the distinctiveness between processes through the deliberate attention to the overlap between processes of AC as it emerges through levels of analysis. AC processes from an organisation level infers a clear distinction (Lane et al. 2006; Todorova and Durisin, 2007; Zahra and George, 2002). Although the structural process approach to AC proposes distinct elements, from individual interaction perspective and through levels of analysis, there is a strong overlap which suggests a bi-directional and cyclical movement of knowledge flows, hence the need to control different forms of learning (Levinthal and March, 1993). The dilemma of controlling to the extent that innovation is compromised raises another complication for the organisation.

Divisions within an organisation may have varied education and professional structures that guide their activities within an organisation. They each may be predisposed to acting in a particular manner. The literature informs that in retaining knowledge, organisations require prior technological and market knowledge (Lichtenthaler, 2009; Marsh and Stock, 2006; Teece, 2007), in this case knowledge about education and technology. The structures from education professionals and the technological professionals come into play. More importantly, when knowledge is not similar across divisions a higher learning curve is required (Van den Bosch et al. 1999). It is manifested through the process of seeking new knowledge as well as reactivation. The approaches with the education professionals is a tendency to seek new knowledge from within first, while the technologist reaches outside of the organisation in an active manner as seen in the example of participation in podcasts, a common activity in the IS division.

Accessing the latest in technology, and the idea of more (technology) or the current technological development meaning better (Garud and Navyer, 1994), is not necessarily the ultimate goal in slower environments as budget constraints favour more relevant and targeted technological and market knowledge. This is an opening for determining the quality of knowledge that is required for an organisation to meet strategic goals. The quality of knowledge is seen from different perspectives and so may affect whether

knowledge is “actionable”. Since new knowledge in this investigation is not based on what one informant referred to as “new to everyone” the value is related to whether the organisation can act on it. In addition, as so many respondents stated, who presents it also gives it legitimacy. This is tied to the hierarchical state of the organisation and not entirely to the new knowledge. Also this new knowledge may exist in one division as seen in the IS division. This example in the IS division was largely exploratory. However, in other divisions as was explained by other heads who were at different stages of the AC process in terms of assimilation and transformative process, this was an different experience entirely. Information systems division moves one stage of exploratory learning, and dictated assimilation process to another, which was a disadvantage to the AC process since they did not participate in the exploratory process. The power of technology permeates the organisation, and can be seen in the example when defining accessibility rights of a head of a division is determined by the IS head.

Todorova and Durisin (2007) argue that transformation represents an alternative process to assimilation. This investigation has placed the individual at the forefront, and incorporated levels of analysis to insert a contribution to understanding of the AC process. On that basis a number of factors are revealed. Firstly, the link between processes facilitates a connection between forms of exploratory learning which sets the foundation for assimilated or transformative learning. This investigation suggests that the approach to exploratory learning predisposes the extent to which assimilated and transformative learning is achieved. This alternative is described through degrees along a continuum (See Figure 15).

Ausubel’s (1978) conceptualization of assimilated learning indicates a processual and highly controlled environment. This also implies that creativity which requires some form of randomness to flourish (Gray et al. 2010) and control of learning may dampen innovation. This is evident from accounts by informants who accept the change on the basis that they are bound by the established rules and their contractual responsibilities. Internalization of new employees (Miller, 1997; Waldeck et al. 2004) is referred to as socialization has been another challenging issue with regard to new ideas, which was raised by both new and seasoned employees. These perspectives provided two diverging points of view of the same event. The tensions are also an indication of responses to the new strategy, therefore the expectation of innovation was low, with a few individuals experimenting and innovating at lower levels of analysis. This means that at the organisational level innovation is not realised.

It is important to recount Mezirow's (2009) emphasis on the critical dimension in adult learning that enables recognition, reassessment and modification of "*structures of assumptions and expectations that frame our tacit points of view and influence our thinking beliefs, attitudes, and actions.*"(p.20) The use of "structures of assumption" implies a core transformation, rooted in tacit perception. This facilitates critical reflection which is a cornerstone of transformative learning. Critical reflection is one element that transcends parts of the AC processes. According to Mezirow (2009), critical reflection must occur from the initial exploratory learning activities. It is also acutely cognizant of the environment, in which it may develop. In applying this in this organisational environment, clearly negates the very essence of transformative learning. Therefore in this investigation, under the controlling principles of the organisational structure, transformative learning is not expected. The question remains, to what extent is innovation more apparent when the pivotal ingredient for creativity is contrary to the management ethos of control. This does not rule out increments of transformative learning, hence the connection to assimilated learning.

Informants indicated a tendency to discuss ideas with friends and colleagues. Interacting with friends and colleagues, who hold similar ideas, may tend to reinforce the environment for consensus and not critical review of ideas. The balance between instrumental (Habermas, 1991) and communicative (Mezirow, 2009) learning requires clarity. In addition to the conciliatory approach to reflection informants also indicated that this activity was rare, the tension between time for reflection and deadlines was very high. As an antecedent of AC reflection associated with the assimilated learning process, facilitates the updating of organisational abilities. The actions related to reflection showed a range of activity from personal reflection and to that related to appraisals. These examples demonstrate the passive approach to reflection, which does not show the deep rooted transformative change which Mezirow (1978, 2009) articulates. The idea of transformative learning supported by critical reflection, suggests a rise in tensions with management. Specifically, critical reflection may challenge the power and political dynamic that shapes learning in organisation. With the penchant to lean on power related strategies in the promotion of AC process in this case study, the unawareness of the notion of power as conceived by Foucault (1980) hinders the effectiveness of AC.

6.3.6 EXPLOITATIVE LEARNING -A DIVISIONAL AND ORGANISATIONAL PERSPECTIVE

In an effort to understand AC processes, another form of learning associated with training and AC is used as a link between the different forms of learning occurring in the organisation. This example demonstrated the challenge of exploitative learning when competing forms of learning are used within the organisation. As detailed in the literature review, there are two steps to this process; they include converting and applying this new knowledge (Lane et al. 2006; Todorova and Durisin, 2007). The AC process is used strategically in a more uncertain stage of learning and prescriptive and emergent learning is used as a defining form of learning emanating from the simultaneously learning occurring in the organisation. The previous dimensions have also established a difficult learning environment on which this form of learning was implemented.

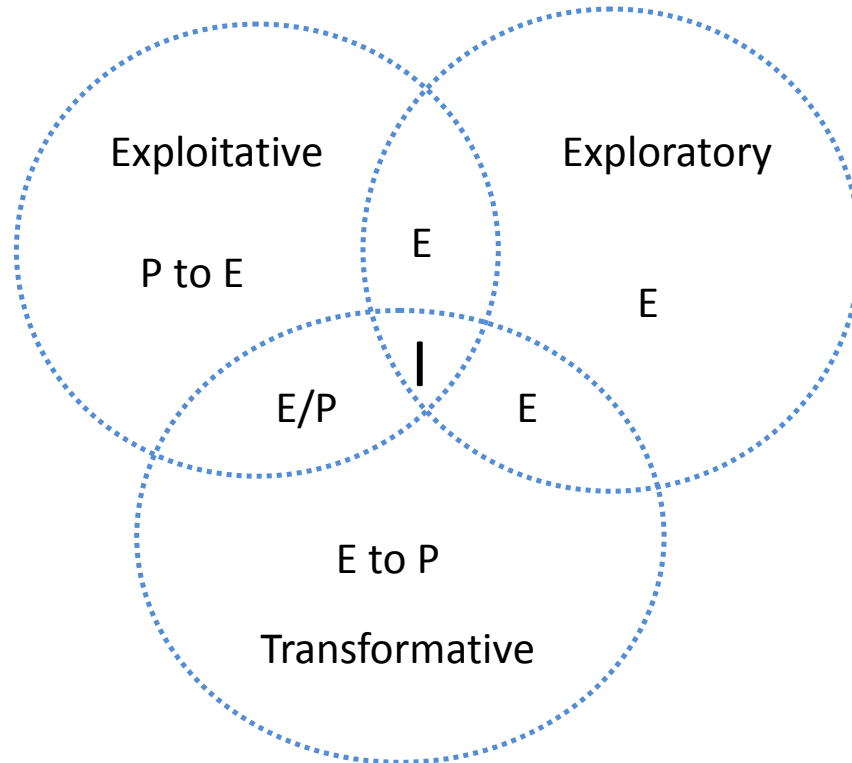


Figure 14 – Forms of Learning AC and emergent and prescriptive learning at the divisional level

This diagram shows the two major forms of learning under discussion from a divisional level. It also indicates that the level of divisional integration with other forms of learning means that it is more likely that innovation may occur.

A mix of emergent and prescriptive strategy was used, to implement the office communicator which included a new phone system, integrated with corporate email and internal instant messaging system. The strategy included the removal of all old phones, which were taken off the desks and employees were moved immediately to the new

system. The Information System (IS) Division assumed the role of a basic ‘help’ service for staff. This allowed staff to be the initiators in requesting help. This also meant that those who wished to explore the functions of the office communicator were also free to do so. From the perspective of the IS division this was part of the exploitative learning dimension initiated through the new strategy with a technological focus. As mentioned previously, IS division performed the exploratory phase of determining the seeking, recognising the office communicator for use in Aquacon. Within the division, there was an informal approach to exploratory learning which did not extend to assimilated learning dimension of AC in which all other divisions participated.

The ties between the divisions as well as the dimensions of AC remain and extend the overlap between AC dimensions as IS maintain control over the “help” service. Staff expressed their frustration with the support from IS and IS staff also expressed their inability to assist because of lack of experience for the volume and nature of requests. This could be attributed to the decision not to offer basic training in the use of the office communicator. The IS division finds itself reverting to some extent to an exploratory phase with regard to the “help” service role that has become a focus for the unit. The transformation process continues for ISD in the role of advisor and coaching while other divisions were free to explore or transform work processes using the technology. The use of organisational level AC at the level of the division further separates the individual from the AC process. The process loses ground and positive perceptions because it appears to be initiated and treated as an organisation level process. More significantly, the different elements tend to be separate although still connected.

The second phase of the implementation process indicated an informal learning (Garavan, 1997) element, where employees were expected to use the office communicator in their work processes, with IS support available if they deemed it necessary. This seems to fall into the argument by Olsson et al (2008) that learning through experience will help overcome organisational development challenges. However, Williams (2001) clarifies and provides the condition of organisational history as a major factor in this process. This significant factor is echoed with employees; even though they can see the value of the office communicator, there is a commitment to the past that requires a change in perception and not only action. The initial stage of exploratory learning as well as the strategy employed; prescribed or emergent requires an understanding of the history and the individuals in the organisation. Prior related knowledge (Van den Bosch et al. 1999)

forms a base from which behaviours find root. The relationship between the significant influences of the AC and the particularities of this situation requires deeper consideration.

Transformative learning is greatly affected by the experience of the previous phase and may benefit from the self-directed learner (Dealtry, 2004). Since the initial phase has been framed by the structure of the organisation and based on the type of new knowledge under investigation, individuals are given “freedom” to explore. The sequential phasing (Lane et al. 2006) of the AC process is brought into question here. Tracking the movement of new knowledge within an organisation demonstrates the unpredictable nature of the process. The particulars of the case are critical to this predictability. It also raises questions about the phased approach to implementation of technology and how the history of the organisation allows it to learn or unlearn (Tsang and Zahra, 2008). Timing and presentation of new knowledge and implementation are critical factors that affect defence mechanisms. Prescriptive approaches affect the speed and depth of effort respondents will give to initial integration of new technology into their work processes. Coordinating learning activities by division is required so that the learning processes feed into each other rather than simply being simultaneous or in some cases sequential. The frustration experienced by staff in the IS division in their role as explorer and coach overlapped is understandable. In addition there was insufficient time to internalise this new role required for the next organisational level process to occur.

Exploitative learning was greatly affected by the preceding activities along the learning processes. The idea that this process is sequential in theory, does not allow for a combination of prescriptive and emergent tendencies. The nature of the new knowledge, the strategy and timing learning approaches determine the level of learning. The creativity elements may be higher in instances where the traditional learning tendencies were not followed or individuals did their own explorations (Dealtry, 2004). However, within the exposure of the office communicator, there were some examples that demonstrated engagement, commitment and innovation.

6.3.7 AC PROCESS AND THE ADDED VALUE IN THE CARIBBEAN CONTEXT

The Caribbean is in a precarious situation where information and knowledge can be an essential tool to ensure an effective innovation system. The traditional methods with prescriptive tendencies are by far the most common practice associated with technological projects in regions as the Caribbean. (Heeks, 2008) and supports the “acute anxiety” of IS failure which is compounded in contexts such as the Caribbean (Avergou, 2008b; CARICAD, 2009). The ability to engage and move beyond the simple utilization of a technology in work environments is still a struggle (Heeks, 2008). The most common response to the implementation is how it was presented, which outweighs the eventual value of the implementation of the technology. Participants in the study although acknowledging reluctantly that the technology was useful and improved their working processes, expressed lack of enthusiasm in engaging in the last stages of the process since they wanted to be more a part of the entire process. Perceptions of users as passive receptors requires revision, but a strategy to see them as active producers and innovators (Heeks, 2008), is a challenge on which this investigation may shed light.

Learning is essential for technology in the Caribbean as it may be a critical indicator of sustainability (Bada, 2002; D’Mello, 2003; Venner, 2011). Learning as AC provides a useful theoretical approach to using technology as new external knowledge. Also, the innovative properties can be used here since the implementation influenced organisational change (Avgerou, 2008b). The CR approach (Mingers, 2004; Reed, 2009) opens up the debate on the theoretical perspectives with regard to IS and the potential for innovation (Orlikowski and Baroudi, 1991).

6.4 IMPLICATIONS OF RESEARCH

The extent of originality of thought depends partly on the condition of current research in AC at the time of this investigation. A number of factors shaped this case study, which related to oversights in the literature. In establishing critical realism as a philosophical approach, this study was able to concentrate on multiple realities through individual interactions at different levels of the organisation. This also continues the original work from the seminal paper of Cohen and Levinthal (1990) where they indicated the value of the individual in the AC process. The general ideas of Lane et al (2006) are also tested and adapted to provide an understanding of how integration of a new concept, such as transformative learning, may materialise.

This study contributes empirically to the AC process in terms of the design and approach to the AC process. A synthesis of power and politics and the relationship to AC process is a contribution that demonstrates the complexity of the AC process. The elements in the dimensions of the AC process were interpreted with additional structures, namely, information seeking and the relationship to recognising the value in exploratory learning; distinction between assimilated or transformative learning; and an embedded form of emergent and prescriptive learning used in an understanding of exploitative learning.

The context for this investigation is new in two respects; first the Caribbean is the background to this investigation and may provide a platform for sustainable development of technology in these environments. Second, investigating the AC process in a non-profit context influences the interactions of individuals and antecedents of AC. The combination of ideas related to levels of analysis and individual interaction reveals new insights as these areas remain oversights in the AC literature. The theoretical contributions to AC included attention to a few antecedents. These antecedents formed part of this investigation in order to discover their influence in the AC process. These elements can be divided into two general groups as the focus of this study was in intra-organisation; a) knowledge features (prior related knowledge in terms of organisational memory, knowledge richness and diversity, complexity of knowledge, ‘tacitness’ of knowledge); b) Organisational features such as communication, boundary spanning, power, training and shared visions and goals. This is followed by consideration of dimensions of AC and the influential view of the levels of analysis.

6.4.1 RE-CONCEPTUALISATION OF AC

The re-conceptualisation of AC in this investigation combines an understanding of previous research (Cohen and Levinthal, 1990; Easterby-Smith et al. 2008a; Lane et al. 2006 and others), as well as the various factors that influence the AC process within the context defined by this investigation. The conceptualization of factors influencing the AC process were loosely addressed in the literature review, and depicted in Figure 2. The complexity of relationships between factors was indicated; however they were not defined in detail. The nature, extent and varying levels of influence were not detailed since these were gaps that were identified and addressing those gaps was the purpose of this study. The findings of this investigation highlighted a number of factors that influence AC, and also suggest that varying levels of influence may affect the process.

This re-conceptualisation features the influence of the individual from the triggering stage of the AC process. The organisational structure is represented by the individual, and divisional, perspectives as addressed through the themes in Chapter 5. The focus from the individual perspective provides a different lens to the process and also affects the emphasis on particular aspects of the process as already indicated in the triggering stage. In addition, this also creates a further emphasis on the exploratory stage as a critical phase for the effectiveness of the AC process towards encouraging higher levels of innovation. This effectiveness is characterized by the integration of critical reflection from the exploratory stage and the engagement of transformative learning.

The influence of power and politics are also realized as throughout the AC processes and Figure 15 demonstrates how they shape the process as well. AC in this context is also affected by two other forms of learning already operating within the organisation. Emergent and Prescriptive learning in addition to the way in which the AC process commences affect the potential for innovation.

Another vital ingredient to this process is communication. Communication shapes the nature of AC, but also can inspire and encourage effective change and innovation. Communication needs to be harnessed with specific reference to the issues at hand, with a careful attention to all aspects of communication, as well as timeliness. The integration of other factors of power and politics, prior related knowledge create a complex environment. However, a balance of these factors in relation to the specific circumstances may create a receptive environment for effective change.

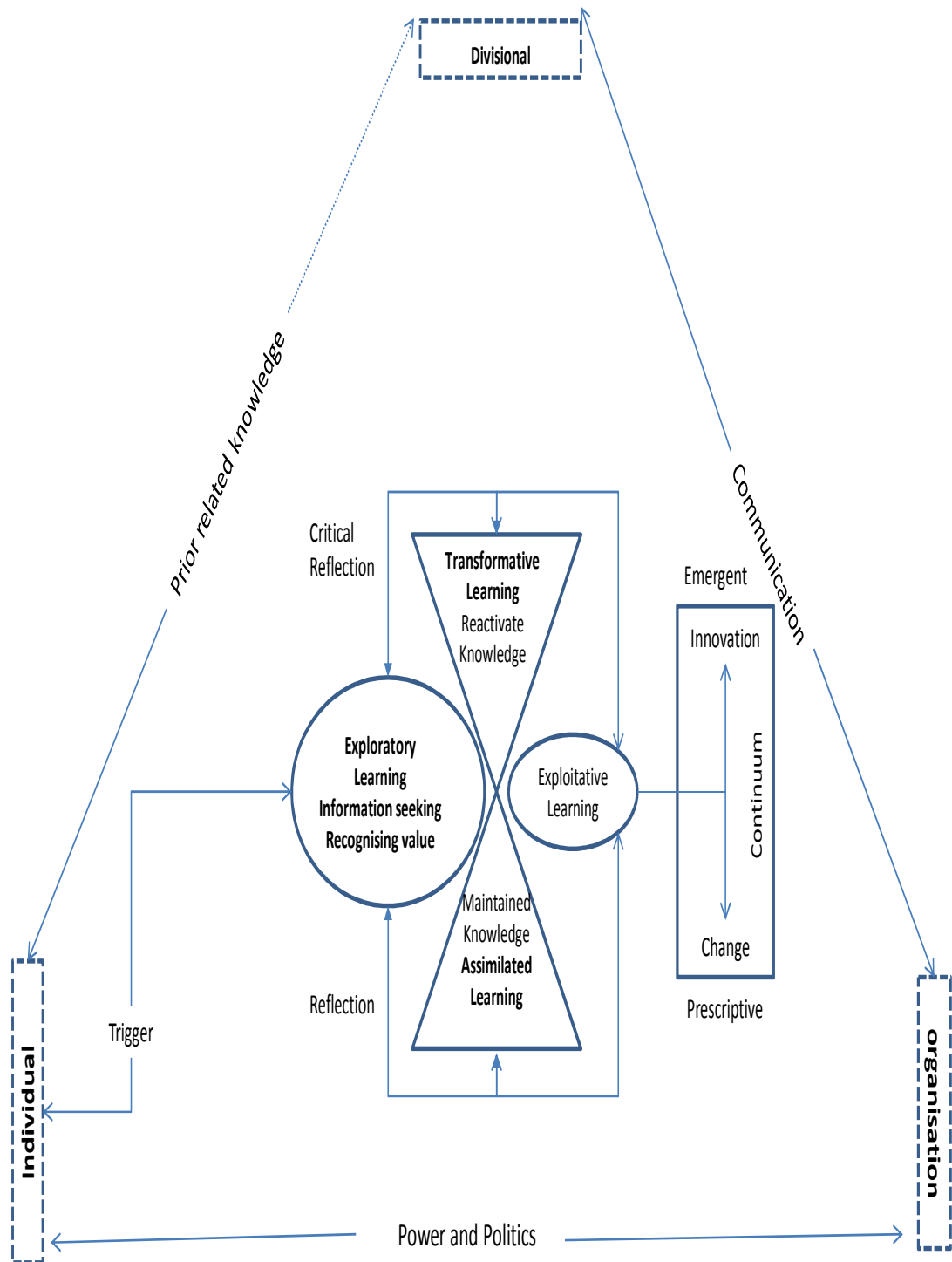


Figure 15 – Reconceptualisation of AC

This figure represents a reconceptualization of AC based on the findings of this investigation. This figure establishes the difference and importance of the various forms of learning, particularly some aspects and of the influence on innovation. It also depicts the influence of the nature of reflection in the AC process and potential for change and innovation.

Prior related knowledge form a sound foundation for the AC process or in some cases a rather challenging experience. To circumvent the more challenging experiences, the combination of effective communication and skilful politicking may create an environment where the potential for innovation is seen and experienced at higher levels of the organisation. In this way the traditional organisational AC and individual AC can meet in mutual success and both contributors to the process can also benefit.

6.4.2 KNOWLEDGE FEATURES

Triggers are interpreted by individuals who then influence the new knowledge that enters the organisation, which suggests that different forms of new knowledge that enter can mutate between units within an organisation. At different levels of analysis new knowledge can be triggers. Prior related knowledge based on individual actions may be used and depends on who holds power and the position that is held as well as the ability to exercise it at any point in time. At different levels of analysis organisational memory may be influential, as it relates to prior related knowledge in response to new knowledge. Therefore learning varies at different levels and times which compound the existing challenges of learning in the organisation. The nature of prior related knowledge can be highly associated with negative experiences and this has an effect on change and suggests a negative influence on all dimensions of AC processes at different levels of analysis. This negative influence slows down the movement and effectiveness of AC.

As new knowledge moves between units the power to move and enhance AC is challenged, and potential powers of persuasion are overlooked. Knowledge quality (actionable) although may be useful may not be a major influence on AC as the exercise of power is highlighted. The nature of new knowledge that is the extent of 'tacitness' of knowledge which is more prevalent in developing environments enhances the power of knowledge and the ability to influence others in the organisation. This also contributes to the further unpredictability of AC.

6.4.3 ORGANISATIONAL FEATURES

Communication is a pivotal element to the AC process (Cohen and Levinthal, 1990; Minbaeva et al. 2003). Interdependence between divisions requires effective communication in particular from a dominant division which is critical in fostering learning in a developing context. The tensions between different parts of the organisation give rise to multiple viewpoints and desires that may contradict each other. However,

active participation and interaction exposes the needs and values of different divisions in terms of their dependence and interdependence with each other. The dynamic interplay of oppositions has an impact on the nature of communication and its emergent or prescriptive qualities. Symmetrical and asymmetrical communication (Grunig et al. 2002) may be employed when appropriate.

Boundary Spanning requires a different orientation from traditional conception since technology has increased access to information and knowledge, and this may involve an infusion of information literacy training so discussions among colleagues can be based on quality information and knowledge. Training is a competing form of learning within the organisation. Timing and its strategic purpose within the dynamic learning environment needs to consider competing and simultaneous learning activities. Emergent and Prescriptive Learning approaches define another strategy that increases the complexity of the learning landscape which adds to the diversion of competing learning opportunities in the organisation.

Multi-dimensions of AC

This investigation was able to trace emergence by employing the multidimensionality process dimensions of AC as well as the relationship between them. Exploratory Learning is further defined by information seeking which is determined by the strategy outlined by management. The other stages of AC are also affected by other organisational and knowledge features, therefore the distinction between the dimensions although can be seen at the organisational level, it becomes blurry at the deeper levels of analysis. The outcome of AC is critical to organisational level AC, therefore both knowledge and organisational features must be considered throughout as it varies at different levels of the organisation. Recognising the value of new knowledge is a power-laden activity which involves a number of individuals within units and is reiterated in different forms as new knowledge and learning occur; and as units react to new knowledge in its different forms.

Assimilation and Transformative Learning

This case study suggests a distinction between assimilated and transformative learning. However, due to the dynamism of knowledge and learning, the extent to which one achieves degrees of both forms may be seen on a continuum (Figure 15). The distinction between assimilated learning and transformative learning is determined by prior activity in the exploratory stage. Therefore, the nature of learning required by the organisation

needs to be visualised prior to the initiation of the AC process, so that a platform to enhance effectiveness may be established.

Reflection in the above-mentioned continuum of learning suggests a level of critical reflection during the exploratory learning stage. This is a major challenge as organisations need to decide if control or learning is a priority, as the two notions are contradictory. This suggests that an imbalance may affect the extent to which innovation in its most limited form permeates the organisation between individuals and units, as it realised at the organisational level, but not necessarily recognised at the deeper level. This affects an understanding of the full picture of the AC process.

Exploitative Learning

Training in this investigation is used as another form of learning to observe an emergence of AC process. The forms of learning related directly to AC through a more uncertain period where for example a particular software is chosen for implementation and forms the foundation for other forms of learning. This other form of learning is related to a specific learning activity where there is a clear indication of changing natures in the interaction of the two levels of learning. The strategic direction is further defined with the use of emergent and prescriptive strategies. There appears to be a relationship between emergent and prescriptive strategies in terms of simultaneous deployment, as they inform each other in different roles in transformative and exploitative absorption processes. The initiating and dominant approach in the explorative process is emergent learning. However, due to the forms of learning occurring in units it is difficult to establish a learning form that describes the overall learning landscape of the organisation and reduce it to one form at the organisational level.

Users of the technology tend to enter the AC cycle too late, which contradicts the important notion of user-led innovation in IS (Mingers, 2004). In a Caribbean context, environmental and organisational constraints become more dominant which limit an individual's capacity to act freely. Subjective norms in different parts of the organisation will influence the nature and dominance of prescriptive and emergent forms of learning. To determine the balance of the interaction and roll out of the AC phases, the emergent and prescriptive strategies should be closely connected. The initial exploratory stages of the process may increase absorption with as many players as possible from all levels of the organisation. This phase plays a critical part in defining the learning strategies within the transformative phase. Due to cost-effectiveness, exploration and recognition tasks are conducted by small functional IT related groups. Although this may explain the lack of

user involvement in the first stage of the technological change mechanism, the subsequent strategy of training increases the complexity of the process.

Assimilated and transformative learning which reveals more clearly attitudes and glimpses of creativity may be most compromised in this phase, given that the exploratory stage may have alienated other employees. The domino effect may be seen as the effectiveness of exploitative learning is dependent on the previous phases. If the timing and inclusiveness of exploratory learning is appropriate, then the balance of emergent and prescriptive strategies may create a foundation for sustainable technological implementations. Furthermore, issues of scalability maybe another factor to trace and investigate. Future research may consider the comparison of different methods and how they affect the exploratory phase in terms of how individuals responded to the processes related to the technological change. Again the balance between the learning strategies; the phases of AC; the roles and relationships that exist in the organisation are fertile opportunities necessary for this current economic climate where cost effectiveness is paramount.

Levels of Analysis

Through different levels of analysis AC process can be traced and further elements revealed as well as how it emerges through the organisation. Individual to individual action and interaction show a tendency towards conciliatory forms of discussion and interaction, gaining support for ideas and new knowledge. More open and critical discussions are held outside of the organisation as seen in the podcasts example. Intra – divisional views reveals a varied form of learning within divisions which does not extend beyond that boundary. The interactions between divisions are not consistent with the learning that may occur within units. This increases the complexity of the AC process as it is interpreted and reinterpreted between divisions. Learning at this level should be a factor considered in each stage of the AC process to predict effectiveness. Inter-divisional learning is difficult due to the inconsistency of learning characteristics within each division. This may explain why organisational level AC is highly unpredictable. To increase predictability this level of learning needs to fully incorporate the inconsistencies of units so the complexity and intricacies of influential factors are revealed, and an appropriate strategy may be developed to meet those situated challenges.

Critical Realism

CR allows for the multiple realities so that there is evidence of the myriad behaviours that “new knowledge is constituted” the reactions from the players are varied. Also, what is constituted as “new knowledge” is dependent on views and perceptions. The common response to the training focuses on the manner in which it was introduced. The juncture at introducing the new knowledge seems to be “deal breaker” for most users, as different forms of learning directly related to AC did not extend to them until the training exercise. The few employees who demonstrated genuine initiative are not supported, in that like-minded colleagues are not available to discuss possibilities of how to exploit this new knowledge.

AC process investigated through a CR lens highlights the structural relationships inherent in the organisation that determine the processes in which the AC process engages. These structural relationships, roles, responsibilities and positions influence knowledge sharing and provide a revealing perspective that is not easily apparent. These underlying activities are manifested on the surface at different levels of analysis so that the organisational view (represented by more people in the organisation) is also varied and multifaceted. These variations point to the forms of learning occurring before the AC process begins and throughout. The nature of the AC process engages with these learning processes also creates opportunities to reveal more about learning in general within organisations.

This qualitative and interpretive study is a small step towards revealing a deeper understanding of the AC process. It also unlocks the potential for further research in a wider and untethered approach, which will also lean more to practical side of AC processes. This qualitative investigation contributes to the gap in AC research which has been predominantly quantitative (Lane et al. 2006; Van den Bosch et al. 2003).

6.5 IMPLICATIONS FOR PRACTICE

This study provides an additional perspective to enrich decision making, to provide a deeper understanding of forms of learning at various levels of the organisation, when new knowledge enters the organisation. These contributions are also useful in the Caribbean context. Managers may find this investigation useful in a number of ways including understanding and incorporating previous learning experiences at relevant levels of analysis in the organisation concerning change in particular the nature of previous

learning strategies, successes and lessons learnt. An understanding of the different forms of learning that might be occurring at different levels may allow flexibility to encourage levels of innovation. With an increased understanding of the complexity of learning within the organisation, strategies should also demonstrate potential effects on learning. Managers may find that a multi-layer learning strategy may be more effective. Multilayer learning strategy may provide a deeper response to the learning environment of the organisation. To add to the multi-layer approach, managers may need to define different types of users to target for greater levels of absorption, in addition to similarities associated with work processes.

Communication strategies vary within divisions and alter between divisions. Effective communication mechanisms are pivotal, and require constant attention and modification in keeping with the dynamic nature of knowledge and learning. Managers may use gossip and grapevine avenues constructively, as it mitigates the strategic intent of information and knowledge that enhances the AC process. Divisional managers are key shapers of the learning landscape and require expert communication skills for confidence in official information and knowledge. The dominant role of divisions in relation to the new knowledge should be supported throughout the AC process with a high level of communication skills.

Managers may incorporate as far as possible ideas and knowledge from the inside for functional politics which also promotes the new strategy. Managers may use the significance of incentives more effectively in promoting information and knowledge sharing between individuals, groups and divisions. Also, giving recognition where possible to also encourage more organisational level awareness as well may reduce competition between divisions to enhance communication and knowledge sharing. Managers should encourage experimentation with new ideas and technologies with organisational processes and provide incentives. Timing of training needs to occur at the moment of need and utilization.

Understanding the distinct learning characteristics within divisions and inter-unit as a first step in considering new knowledge before it enters the organisation and how it may contribute to the overall learning ecology of the organisation may prove useful. Defining and establishing an awareness of different information and knowledge sharing practices in different units may develop a deeper understanding of learning activities in the organisation. Managers may need to understand the professional conventions that may influence information and knowledge sharing practices. An awareness of potential of

power and knowledge used by other individuals with major responsibilities for change requires attention. Managers may also find that understanding the organisational memory specific to the new knowledge or technology to be implemented may increase effectiveness. Information and knowledge need to be defined in terms of use and accessibility, so that a more open environment, in terms of ‘knowing what to share when’ is established to maximize strategic effectiveness.

Managers should involve as many users as possible in the initial learning approach to AC, which informs the suitability and timing of emergent (E) and prescriptive (P) learning when implementing ICT. The role of divisions in a particular event sets off dynamics that define this event as well as other activities in the organisation. These preliminary activities and interactions create a chain reaction which is difficult to control and manage. An understanding of the roles played and the interaction of groups demonstrate the various perceptions, mechanisms and elements that affect for example technological change (Avgerou, 2008). Technological opportunities have revolutionised to the extent where a boundary spanner can be anyone who has an interest and capability that is relevant to the event occurring. Cross (2007) comments that a fundamental characteristic of a complex system where learning thrives, “ *...simple entities self-organise to form something more complex...training converges with bottom-up self organising systems, ... and the empowerment of individuals, it morphs into emergent learning*” (p.37).

The nature of business has changed from predicting demands of services and therefore conforming and managing processes; to an unpredictable and flexible environment where continuous learning is the norm (Brown and Hagel, 2005). A learnscape (Cross, 2007) with dynamism and innovation as fundamental pieces, requires quick responses which are derived from (Cross, 2007) “*...keeping options open and creating an organisation sufficiently flexible to roll with the waves*”(p.38).

6.6 LIMITATIONS OF THE STUDY

The limitations of this study are addressed methodologically, and the inherent limitations of the researcher and the corresponding restrictions are also given attention. Each decision from the conception of this project is riddled with possible alternative paths that may have been taken. The limitations here address the choices made and are limited to this frame since an all-encompassing consideration would not be feasible. Any choice of

case study presented limitations which included lack of time and or money, which also affects the development of the rich explanation required in qualitative research (Merriam, 1998). There was limited access to the organisation due to work pressures and deadlines. Also the researcher was the main instrument of data collection and as such this investigation presented limitations related to subjectivity and bias.

Although this is a qualitative and interpretive approach, AC has been investigated in a predominantly quantitative approach. This case study approach is warranted, in terms of adding to the research in AC to date. The case study strategy has many limitations (Eisenhardt, 1989; Yin, 2009). Through this in-depth view, the constraints point to overlooking more definitive causal conclusions from this research strategy, as alternative explanations are also feasible. However, the CR approach accepts this state and throughout the study the aim was to provide additional contributions to the extant research and not to provide one explanation to encompass all possibilities. This is a multiple case study which is advised when using this strategy (Eisenhardt, 1989), although the advice for a number of cases, infers a mixed conception of methodologies are still a concern from a CR perspective (Easton, 2010). The issue of rigour was countered by maintaining copious notes. A theoretical analysis used in this investigation responds to the general criticism of case study strategy as lacking in generalisability. Using a case study strategy and mainly a qualitative approach as outlined, limits generalisability. However, a theoretical analysis used in this investigation opens up possibilities for empirical research in the event that this study is tested in other environments.

Most of the data collection for example was carried out during a two month period and opportunities for feedback were not feasible for a number of reasons. Informants indicated that their time was already stretched when the researcher conducted the initial interviews. Also budget constraints did not facilitate the face to face feedback from informants as suggested from the CR literature (Reed, 2005). There was no supportive data collected from outside of the organisation to substantiate the responses from the informants within the organisation, due to the many variables within the organisational setting (Remenyi et al. 1998). The interview only captured in retrospect the memories that the informants could remember at the point of the interview. After the interview informants may have had more to contribute which may have improved the richness of the data. The hierarchical nature of the sample and suggestions by managers may have

skewed the data in support of the work of the organisation. However, the snowballing strategy was meant to balance that bias.

The 54 informants although covering one third of the organisation staff, may still mean that an element may have been overlooked. The sample for each division was different as was expected, warranting theoretical analysis between cases as the cases exhibited varied demographics and characteristics. Cross case analysis, and the comparison of themes from the findings as well as similarities and differences between cases, enhances the dependability, credibility (Denzin and Lincoln, 1994) and theoretical transferability (Yin, 2009) of the investigation.

In reporting on effective presentation of the case study, Merriam (1998) and Yin (2009), advised that length and readability were limitations. This must be balanced according to Hussey and Hussey (1997) by a critical ingredient of authenticity, in that extensive quoting from the data collected through the semi-structured interview is evident. This study collected intensive data from the interviews and therefore a rich and authentic approach was used so that there was little distraction from the informant's voice. In any investigation data are missing and may be unreliable. Concern for informants who operate in close proximity, the nature of the analysis and design of this investigation meant that returning to the site may reveal information that could result in negative reactions. This investigation rests on the perception of informants of past events and experiences, and therefore issues relating to selective memory, or recalling events that occurred at one time when they occurred at another; attributing positive events and outcomes to self; and exaggeration formed part of the researcher's assessment. The corroborative element built into the design, where informants are linked through their work relationships gave support to verification issues.

Limitations of Researcher

The researcher is from a Caribbean context which also influences the study. Access to the people in the organisation was a challenge. There was difficulty in gaining access primarily due to confidentiality. The researcher was not able to observe and interview simultaneously, therefore opportunities for observation were compromised due to time limitations and access to informants. In addition closed office spaces and restricted access to some areas also reduced opportunities to observe. However, an opportunity for observation arose during an organisational retreat, although is a somewhat artificial

setting. The dynamics in divisions and groups were accessible in particular when addressing new ideas or knowledge.

6.7 FURTHER RESEARCH

Future research emanating from this study falls within the following areas including the AC processes and dimensions, related to power and politics, public sector organisations as well as information and knowledge in a Caribbean context. The notion that the trigger ends at a process (Zahra and George, 2002) may require further investigation since the ripple effect sees the result of triggers moving learning activities in diverging directions. At the very least, the complexity of AC, infers a continuous effect and reaction as the response to the initial trigger occurs. The study of knowledge within organisations provides a more in-depth understanding of management within a Caribbean context and can provide insights into issues that require attention to enhance knowledge absorption. An overview of knowledge and its influences on a global scale may establish a step towards how poverty can be alleviated with appropriate application of knowledge. Investigating AC processes in this environment may increase the effectiveness of small and developing economies that require collaborative social and organisational cohesion to survive.

The historical make-up of the Caribbean context needs to be put into perspective in order to understand the underlying issues related to culture and knowledge absorption. Investigating AC process from various levels of analysis within a Caribbean context may provide a rich and diverse picture of knowledge absorption that may facilitate the effective use of new technologies. The power and political agendas in relation to AC require attention as well to discover specific areas of difficulty for absorption in particular E-government projects. In terms of ICT in various sectors an information and knowledge approach central to ICT project may provide richer and more applicable gains for the funds that are contributed for development purposes.

Further research in gossip and information literacy in the AC process, may add to the limited AC literature (Szulanski, 1996; Gupta and Govindajan, 2000; Jones, 2006) on the complex individual actions and interaction within the AC process. Information Literacy within organisations is another activity that can support knowledge absorption as knowledge activities are dissected to further the understanding of how new knowledge is used and affects organisations. Further research in the nature of new knowledge and the

variations in relation to public organisations is needed to increase effectiveness and learning. Specifically, the nature of new knowledge and prior related knowledge require further investigation to understand not only levels of prior knowledge, but the nature and structures that shape it particularly in power and politically charged environments.

The Foucauldian notion that power and knowledge do not have a stable status and knowledge is regarded as legitimate based on the outcome of negotiation (Marshall and Rollinson, 2004) requires further investigation. Any investigation on AC and power should include a wider range of power concepts to again develop a richer understanding of knowledge absorption. In view of this further and deeper investigation into the political nature of knowledge is required to contribute to a deeper understanding of AC process. The issue of surveillance and power in the use of technology which has been characterized in some examples as new knowledge is also an integral factor which may affect knowledge absorption in cases where trust levels are low. According to Walsham (2001), “*what we know affects how influential we are (thus)... there may be good reasons why individuals may not wish to participate in, or may modify some aspect of their sense-giving activities related to organisational politics*” (p. 603). Using knowledge as a tool to delve deeper into the power and politics in organisation is possible solution to the difficulty in conducting research (Al-Tuhaih and Van Fleet, 2011) in that area, if power and knowledge are seen as inseparable. The complexity of AC process requires an approach such as storytelling (Tyler, 2009) to capture the complex relationships, and organisational culture that define AC. This appears to be an appropriate approach, in particular for developing contexts where the history of documentation is weak and tacit knowledge tends to be more common for information and knowledge sharing activities.

6.8 CONCLUSION

The aim of this investigation was to understand learning processes that adapted new knowledge which may have led to innovative practices in a public organisation in the Caribbean. This investigation employed AC as a tool to understand these learning processes. To understand the learning processes, the elements that comprise each process under scrutiny were dissected and the knowledge processes required for learning were foundation for this investigation. The learning processes were viewed from the individual perspective. A political approach is inherent through decisions to share new information and knowledge at particular points in time. Furthermore, on the practical side, this was sometimes due to the unawareness of the need for it elsewhere in the organisation.

Levels of analysis are important in this investigation as it produced a further understanding of AC learning processes. This understanding of for example individual knowledge processes allows one to see gaps that have been overlooked when AC is view at the organisational level. There is a mismatch of learning activities in terms of timing, necessity and value. This provides an indicator for managers to develop more suitable and appropriate learning strategies so that knowledge absorption and learning can be more effective.

The initial triggers of the AC learning processes were directed by an individual and provided an additional and alternative view of AC learning processes. This realisation also meant that triggers for one individual could be “new knowledge” for another. This was an important contribution as the emerging learning from individuals also revealed exertion of power in relation to the positions that they held in the organisation. The exertion of power affected the path to innovation, as change in processes was the norm.

A CR approach was used to reveal underlying assumptions of AC process, and related organisational structures such as communication mechanisms and behaviours. The extent to which this was achieved despite a number of challenges was outlined. In exploring the different conceptions and definitions of AC, the perception of AC from individual actions revealed an intricate maze of relationships. This myriad of interactions that affect AC processes need to be considered in isolated instances when addressing problems of knowledge absorption. The underlying assumptions of AC such as knowledge quality were also given attention to observe the associated behaviours. Moving AC to a slower environment also discovered an effect on AC processes, which revealed power and political dynamics that influence AC outcomes. Organisations that need to survive in an unpredictable environment can benefit from assessing factors influencing AC. In addition, AC provides an opportunity for public sector organisations to become more effective and provide essential services in the Caribbean context. The power and political influences were emphasized as a result of the focus on individual, groups and divisional levels of analysis.

The three dimensions of AC exploratory, assimilated/transformative and exploitative learning, show different levels of distinctiveness at different levels of analysis. The findings suggest that from the individual perspective the distinction between the dimensions are blurred. In cases where innovation did occur it was at a lower level of analysis. The conditions that caused innovation even at lower levels need further investigation. Why did innovative behaviours happen in one division for example and not

another. The findings suggest that it was a combination of openness, nature of the divisional responsibility, and the willingness of the individual to explore. It must be noted that at the organisational level, exploration was limited to a few, and individuals were brought into the organisational level AC at the assimilation stage. This suggests a disharmony of learning activities within the organisation and therefore also affects possibilities for innovation.

The findings suggest that transformative learning is more closely linked to innovation. However, when this happens critical reflection would need to start from the exploratory stage which in turn affects the nature of the trigger. In the few cases when innovation occurred, the priority for those individuals was simply curiosity about, and enthusiasm for change. The integration of emergent and prescriptive learning as additional forms of learning created an opportunity to understand the competing and simultaneous forms of learning occurring in the organisation. It also allowed one to see when one form of learning may begin and end. This also provided an opening in the cycle for improving learning activities in the organisation. It also raised additional questions, such as how does the organisation decide when to use what forms of learning? Or what would be the best form of learning for a particular situation.

Power and politics can be a debilitating factor in the AC process. As with communication, the findings suggest that these organisational features are not skills that are readily available. In changing organisational environments AC is greatly affected by these inherent features. Emergence of AC sets a theoretical path that can be analogised to other environments so that the ideas can transcend into other relevant areas. AC may be more effective in atmospheres that encourage nimble responses and implies emergent learning. Integrating different forms of learning concretises, creates opportunities to improve timeliness and flexibility in adapting to changing environments.

This investigation has discovered a valuable tool to realize the effective use of new knowledge. AC is a relevant concept that is a significant tool to ensure that organisations maintain a path through the unpredictable environments that organisations currently navigate. Learning is a potentially vital process that may advance a further understanding of organisations at higher levels of analysis which may affect collaborations at national and regional levels collaborators. This study provides a unique contribution in a the Caribbean context where the focus is on underlying issues related to learning processes, new technological knowledge that may lead to innovation. The linkages between the different levels may need further investigation to observe the emergence of AC process

from within organisations and then to national and regional levels. This investigation cannot claim to have provided an answer to the questions raised. Rather, in true Socratic form it simply arrived at a better understanding of the questions.

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APPENDICES

Appendix A Interview Schedule Participants

Main study Interview Schedule

Thank you for agreeing to participate in this study. The focus of the study is on how new knowledge may change your work processes. Think of how you view new knowledge that alters your work practices. Please think about the following questions in preparation for the interview.

1. What new knowledge do you encounter during the course of your duties?
2. To what extent do you think you need new knowledge in order to do your work?
3. Please explain how you discover new knowledge from other persons within your group?
4. Think of an example and please describe when you realised or identified the value of the new knowledge?
5. Please explain how you actively seek new knowledge to address a specific task?
6. Can you describe an event when you felt positive about new knowledge when it came to you?
7. How do you use new knowledge?
8. Please describe the way in which you reflect on your work-related processes.
9. Please explain how you think of new ways of improving on processes that you currently engage in?
10. Think of an incident where new knowledge was brought to your attention and describe how it was used to change a process.

Appendix B Interview Schedule (Researcher Guide)

Interview Schedule

Thank you for agreeing to participate in this study. The focus of the study is on how new knowledge may change your work processes. Think of how you view new knowledge that alters your work practices. Please respond to the following questions based on your experiences of change in your work-related processes.

Please name the unit that you work in within the Division of Education?

Phase 1 –

1. What does new knowledge mean to you today? (would that be your same answer a year ago?)
2. What new knowledge do you encounter during the course of your duties?
 - a. Internet, books, people in the field, other departments, regional/international entities, other,
11. Please provide two examples of interactions that allow for the recognition of new knowledge?
12. To what extent do you think you need new knowledge in order to do your work?
13. In what way does new knowledge change the quality to your work?
14. Please explain how you discover new knowledge from other persons within your group?
15. To what extent are you informed about new knowledge that may affect work-related activities?
16. Think of an example and please describe when you realised or identified the value of the new knowledge?
17. In what ways does new knowledge reach you?
18. Can you describe a time when new knowledge reached you at a point in time when it was not needed by you anymore.
19. Please explain how you actively seek new knowledge to address a specific task?
20. What work-related activities stimulate the need for new knowledge?

- a. Please provide an example related to your activities
- b. Please provide an example related to the activities of your colleagues
- c. Please provide an example related to activities of your unit

21. Can you describe an event when you felt positive about new knowledge when it came to you?

22. Can you describe an event when felt negative about new knowledge when it came to you

Phase 2 -

23. How do you use new knowledge?

- a. Please provide an example when new knowledge was discussed in a team or group setting.
- b. Describe the process used for selecting relevant aspects for use.
- c. Please provide an example of how you share new knowledge with your colleagues?
- d. Please provide an example of how colleagues share new knowledge with you?
- e. Please describe an instance when you decided to:
 - i. Share new knowledge
 - ii. Not to share new knowledge
- f. In what ways do you use new knowledge? Please provide an example of how it is used within your work.
- g. Do you adapt new knowledge when it comes to you? Describe this process.
- h. Describe a particular instance where in sharing new knowledge you and colleagues conclusion together.

24. Please describe the way in which you reflect on your work-related processes.

25. Please explain how you think of new ways of improving on processes that you currently engage in?
26. What kinds of interactions allow for the movement of new knowledge within your unit? Please provide two examples.
27. How are processes adapted to new knowledge to for use within your department?
28. Think of an incident where new knowledge was brought to your attention and describe how it was used to change a process.

Phase 3 –

1. Based on previous examples that you have provided, in what ways is the “adapted new knowledge” integrated into established processes? Please choose one example and describe this process in detail.
 - a. What are some of the hindrances to the integration of new knowledge into established processes? Please describe three examples and in detail.
 - b. What are some of the supporting factors for integration of this new knowledge into established processes? Please provide three examples and describe in detail.

Appendix C – Ethical Statement

Ethical Statement Re approval for conducting a study for my Ph.D. Thesis in the Caribbean context

Merle Auguste

Working Title of Ph.D. Thesis

Exploring Absorptive capacity as a dynamic capability in social organisations: A Case of organisational knowledge in a Caribbean educational organisation

I propose to investigate the presence of absorptive capacity (AC) in an educational organisation. I plan to conduct interviews via telecommunications and electronic means and face to face in the Caribbean. I intend to conduct one-on-one face to face interviews with approximately 40 individuals who work in the organisation.

I am currently liaising with colleagues the organisation in the Caribbean. Initially I will communicate with the most senior organisational participant of the intended targets informally and then follow up with a formal request. I will provide the participants with a brief overview of the purpose of my study. In addition, the technological requirements necessary for the interviews will also be outlined. I will also extend a personal invitation to the other participants, where my contact details and those of the participants will be exchanged. I will request their consent to conduct the interview via email. Within this email, I will provide the potential interviews with an interview schedule and the opportunity to decline from participating in this study.

I will engage in additional procedures to ensure that issues of confidentiality and the welfare of participants are given high priority during my investigation. For example, one copy of the interview will be kept on my laptop, with another on my external drive. This safeguard will increase security of the data since access will be limited. I will ensure that the participants are aware that they are free to leave the interview process at anytime. I will reassure participants that anything discussed is in total confidence. I will ask participants to provide a private email address for communication regarding the study to again ensure confidentiality.

I will reassure participants that their names will not be used and that no other participant will know what has been said. Documents created from this study will not bear names of any participant; instead, aliases will be used if required. I will also indicate that the credibility of this study is based on following the University's ethical guidelines to which I am committed.

I will state that the structures associated with ethical procedures of Royal Holloway - University of London, such as approval from my supervisor, the director of the PhD program as well as ethical board of the University guide my activities as a researcher. The issues of confidentiality will be reinforced throughout the main study. During each interview the focus will be that particular individual's perspective at the time of the interview and at no time will another person's perspective be alluded to or discussed. This procedure will ensure that individual positions in the organisation are not compromised in any way.

Initially, I will be working online so I will use appropriate online etiquette to create a comfortable environment and develop a rapport with participants before the interview. I will do so by communicating via email before the appointed face to face interview. This will be followed by an introductory email sent directly to each participant, with an indication of our short conversation as well as the questions that will be discussed. Through these contacts I will encourage participants to indicate any issue that may affect them and their participation in the study. In the event that there is a negative view that is raised about other individuals, one option will be for the participant to focus on his or her own contribution. Also, I would guide them into thinking about how they could consider options for changing the current state of affairs.

In terms of data security, participants will be informed that there is only one copy of the recorded file on my computer (with a backup on my external hard drive) and that no other person has access. I will email a copy of the transcribed interview to each participant. I will ask each participant to reply to confirm that their contribution is accurate. I will also seek the participants' permission to keep the transcripts of the interviews.

The interview will be guided by the following sample of questions:

- 29. Phase 1 - What new knowledge do you encounter during the course of your duties?
- 30. Phase 2 - How do you use new knowledge?
- 31. Phase 3 - What are some of the hindrances to the integration of new knowledge into established processes? Please describe three examples in detail.

Essentially this exercise will be a simple and informal face to face discussion about the way the participants perceive how new knowledge moves within the organisation. The findings from this study will be presented in a manner that will not knowingly lead to any legal action, or defamation of character.

Approved on behalf of the School of Management

A handwritten signature in blue ink, reading "Christopher J. Napier". The signature is written in a cursive style with a large initial 'C' and 'N'.

Christopher J. Napier

PhD Programme Director

14 January 2010

Appendix D Letter to CEO

20 November 2009

Dear Ken,

This letter solicits your support and assistance in conducting a study of my research provisionally entitled, “Exploring Absorptive capacity as a dynamic capability in social organisations of the Caribbean”. I would be grateful if you will grant me permission to conduct interviews with a sample of your key professional personnel in order to provide data for my research.

I am currently pursuing my PhD in Knowledge Management at the School of Management of Royal Holloway, University of London. Specifically my research explores how individuals produce, transmit and use knowledge within a professional work environment. I have conducted a pilot in an educational organisation in the Caribbean and have received academic justification that the emphasis and methodology are feasible. It is expected that the results and recommendations of this study will be useful in deepening the understanding of formal educational organisations in the Caribbean. This understanding is essential in order for the Region to address the challenges that lie ahead in the process of globalization.

The data collection will require the time and patience of 30-40 professionals in your organisation. I do hope to conduct interviews at headquarters in Barbados as well as the Western Zone in Jamaica. I hope to interview approximately 40 individuals in Barbados and 10 in Jamaica. I plan to conduct a face to face one-hour interview with each of the selected personnel, at a time that is convenient to you and your colleagues. These interviews will be recorded with an audio device. When I have transcribed the data and interviews are verified the audio recording can be returned to the respondent after my research is completed. In our previous conversation you indicated that February 22 – April 1 2010 may be an appropriate time to conduct the interviews. This time frame is suitable and I shall appreciate if this period is confirmed.

Prior to these interviews in December 2009, I will need to collect preliminary information from some of your colleagues. This information will be gathered via telephone or other electronic means. In addition, I would appreciate access to annual reports, and any other form of information on the organisation.

I do look forward to making more detailed arrangements at your convenience and to answering any questions that you may have. If you agree to this exercise please indicate by email. Your cooperation, and that of your colleagues, is critical to this stage of my research.

Thank you in advance for your support, time and patience.

Sincerely

A handwritten signature in black ink, appearing to be 'Merle St. Clair Auguste', with a stylized, cursive script.

Merle St. Clair Auguste
PhD Candidate-Researcher

Appendix E Letter to Heads of Divisions

Dear

Thank you very much for your initial support in the preliminary activity of this study. This letter solicits your further assistance in conducting my study provisionally entitled, “Exploring Absorptive capacity as a dynamic capability in social organisations of the Caribbean”. I shall be grateful if you will grant me some of your time, patience and experience. Your cooperation is critical if this next step is to be a success as it would provide a new way of approaching how we understand the way in which we develop and use knowledge in the Caribbean.

As you may be aware, I am currently pursuing my PhD at Royal Holloway University of London in Knowledge Management. Specifically, I am exploring how individuals absorb knowledge within the work environment. The purpose of this study is to find evidence of ways in which knowledge changes between individuals and by extension groups. Through your help I will be able to clarify how new knowledge is transformed into use by your division. The study will also be useful to you when the thesis is completed and shared. I do hope that it will support your own efforts in knowledge creation, transformation and exploitation.

I hope that these activities meet with your approval. I do hope that there is a period of time in which we can create the appointment that is convenient to you and can fit into your busy schedule. For purposes of confidentiality the interview may be convened at a venue that is more comfortable for you.

In this regard I am soliciting your time for approximately one hour at a time that is convenient to you. Please indicate your consent to this activity by replying to this email. An appropriate time and place can be arranged with Mrs. Zoe Paul. Also, from our short telephone conversation you indicated that you would suggest names of a few more individuals, within your division who may be able to contribute to the study. Can you email those additional names within your division to Mrs. Zoe Paul and myself so that appointments can be arranged. I will be at Aquacon HQ - Barbados from February 22nd 2010 – March 20th 2010.

Please feel free to email or call if you have any concerns. I thank you once again for your kind consideration and involvement in this study.



Merle Auguste
PhD Candidate
School of Management
Royal Holloway, University of London
Egham, Surrey, TW20 0EX

Appendix F Letter to Other participants

Dear ,

This letter solicits your support and assistance in conducting a study of my research provisionally entitled, “Exploring Absorptive capacity as a dynamic capability in social organisations of the Caribbean”. I shall be grateful if you will grant me some of your time, patience and experience. Your cooperation is critical if this preliminary step is to be a success as it would provide a new way of approaching how we understand the way in which we develop and use knowledge in the Caribbean.

I am currently pursuing my PhD at Royal Holloway University of London in Knowledge Management. Specifically, I am exploring how individuals absorb knowledge within the work environment. The purpose of this study is to find evidence of ways in which knowledge changes between individuals and by extension groups. Through your help I will be able to clarify how new knowledge is transformed into use by your division. The study will also be useful to you when the thesis is completed and shared. I do hope that it will support your own efforts in knowledge creation, transformation and exploitation.

I hope that these activities meet with your approval. I do hope that there is a period of time in which we can create the appointment that is convenient to you and can fit into your busy schedule. For purposes of confidentiality the interview may be convened in the privacy of your home since it is a telephone interview or through a medium that is more comfortable for you.

In this regard I am soliciting your time for approximately one hour at a time that is convenient to you. Please indicate your consent to this activity by replying to this email. When I have received this email I will reply with the details of the study. I have a tried emailing, I may have had the wrong email address. Please indicate an appropriate time when I can call before the interview. In terms of the actual interview, it can take place anywhere and at a time convenient to you. May I suggest Thursday 9th July at about 10 am your time if that is okay. If this is not an appropriate time please indicate a more suitable time via email. Also can you please send me your telephone number if you agree to participating in this study.

I thank you in advance for your kind consideration and involvement in this study.

Appendix G – Sample of List of Codes – Exploratory Learning

Approaches
Brainstorming NK
Confidence
Constraints
Construct NK
Culture
Deficient in direction of new initiatives
Detracts from the NK
Easier way
Economic Climate
Example\Example of NK nuances
Explore all the changes we have had
Fear
Finding NK
Go along with what they tell you
Ideas
Impact on work\Impacts individually
Internal NK
Learn\Learning on the fly
make sense
Meetings are too nice
NK\Nature of NK
NK\NK interaction
NK\NK makes you more excited to seek NI
NK\Support NK
Positive
Presentation Wise
Reading
Recognise NK
Resistance to change\Going through the motions
Restraint re NK
Seeking NK
Self awareness
Strategic direction
Strategic direction\CEO influence on Aquacon
Teach yourself
Team Spirit
Technology
Time
Trigger for NK
Unaware of IT capability
Unified communication System
Use of NK

Appendix H - Example of Codes – Emergent and Prescriptive Learning

Acquire K yourself
Adapt
Best training working with it
Change
Commitment
Communication
Competitive
Continuous learning
Creativity
Critical Review
Critical work
Deficient in direction of new initiatives
Emergent Learning
Strategic direction\CEO influence on Aquacon
Continuous learning
Control
Divisions
Do not have a choice
Does it last long
Faster way
Frustration
Inform
Interaction
ISD
Learn
Misuse of technology
New generation different people
Predisposition to what is established
Presentation Wise
Prior to CEO
Put into practice
Reference from training
Roles
Strategic direction
Technology
Time
Training
Unified communication System

Appendix I - Within Case Analysis IS

Main themes impressions, summary statements about what is going on in the division

- Temporary Head of Division operates like one of the gang and promotes a team atmosphere gives all a voice
- High level of exploration with new knowledge coming from outside
- Recognise and value new technology for the Organisation
- Level of frustration towards colleagues outside of the division constant calls for help, unnecessary
- Very young team, energetic and eager to explore and discover new ideas and see how they can be used in Aquacon
- They provide constant training and technical support, trouble shooting,
- They go to many levels of the organisation, work with everyone, appear to be on informal terms one on one
- Are aware of the expert power, and what their value to the other divisions. Also See their power in setting the tone for technology which is a big push for the organisation on many levels
- Feel that there is a too much being implemented they too get their mandate from the Head of the Organisation.

Explanations, speculations about what is going on in the division

- Feel overwhelmed by all the processes that rests with them
- Within division seems light feeling, very comfortable easy going feeling, little tension, it is run like a team
- They buy lunch for each other and eat in the kitchen together, discuss issues and concerns openly
- IT is the strategic direction of the organisation
- Responding to the CEO – they challenge him – directly and indirectly
- NO IT plan to support overall Organisational Strategy

Alternative explanations, disagreements about what is going on in division

- Shedding of processes to other divisions for ISD to grow as well, their role is causing frustration of ISD staff and rest of the organisation
- Maybe they enjoy the power, but also cannot always manage the challenge, but they are also short staffed so they do what they can; do not know how to deal with the staff in other divisions at this stage without an IS strategic plan; they question the thought of organisation wide transformation in light of the state of the organisation

Appendix J - Within Case Analysis - Business development

Main themes impressions, summary statements about what is going on in the division

- This is a newly established division and not sure about its role - seems to be developing as it goes along
- Within the organisational structure seems to be critical of what is happening
- Functions as an external arm of the organisation to bring in revenue, a source of new products, I wonder if there should be a strong link with QA
- High level of exploration, but seems very ambiguous, seems to lack purpose (may because it is new division - how does that explain QA)
- Does not feel that there are sufficient resources to do what they need to do
- Three person team - high level manager, an officer with a secretary
- Others do not have confidence in them and the CEO is still unsure about their value willing to try it out and experiment
- Questions have been asked - what do they do, what have they produced, they also question their value

Explanations, speculations, about what is going on in the division

- There are mixed feelings - wanting to do more but feel that they do not have support to do it in terms of resources...to do what they think they should do
- The head of division does not think that resources are available to be effective - does not think that the strategy will work and will carry on as they are, "why stress" he appears to be going through the motions and just showing support for something that he knows will fail, does not believe, (Is that the same for the other managers as well?)
- The officer would like to work but needs guidance
- Do not think they have the kind of internal knowledge of or external opportunities to make things work in a big way

Alternative explanations, disagreements about what is going on in division

- There must be a level of frustration that has led the head to be negative
- Maybe the expectations of the head of division and the CEO were different, the head sees too many obstacles.
- Relationship with CEO appear to be solid, showing support verbally, not backed up by action

Appendix K - Within Case Analysis - Exam Administration (EAS)

Main themes impressions, summary statements about what is going on in the division

- Change in processes – appears to receive processes from IS division – who owns those processes
- New head of division and reporting to new head as well
- Appears to be a lot of activity, sharing is done but with different levels of staff
- Staff geographically dispersed – see the distinction with professional and support staff
- Appears to be tension, getting information is difficult, this is echoed by head from her interaction – decisions made and passed on to her
- Too many activities at once, they need things to slow down
- Feel out of the loop and when things do change they are sometimes surprised
- Head had to do a lot of explaining, reluctant responses to changes

Explanations, speculations, about what is going on in the division

- Do not know if the head and division understands their role in the transformation of the organisation
- Appears to be mainly reactive – appear to be highly stressed
- They do not trust the head – need to know basis
- They know more that they show that they know – here grapevine is more reliable
- Their responsibilities are highly confidential, tend to treat all information in a similar fashion

Alternative explanations, disagreements about what is going on in division

1. Since security breach, new head may have to redeem division
2. Maybe so busy do not have time for the changes, so resistance is great, or feel left out of decisions – little voice
3. Head reaction to CEO also one of resistance, CEO stands ground, and Head reluctantly accepts responsibility
4. Underlying resentment

Appendix L - Within Case Analysis - Exam Evaluation (EDPD)

Main themes impressions, summary statements about what is going on in the division

- Historically was once the division with the most power – delivery of results
- Deadline driven and working highly confidential work environment
- Could not get into closed off offices and general area, locked, sense of isolation among officers as well
- Appear to be isolated from rest of the organisation, elite profession within organisation
- Defensive about work and value of work in the process
- Feel targeted by CEO, to produce in a different way and not given tools and resources to do so
- Newly merged division, two divisions in one, still working separately

Explanations, speculations, about what is going on in the division

- Division under constant pressure to meet deadlines – on front line with results of exams - overwhelmed by the responsibility
- Training (not technology) questions competency, reluctantly participate
- Resent lack of participation in formulation of strategy and consultation in direction of organisation at a higher level
- Lack of agreement in state of operations of division - between CEO and division, Head tries to be mediator between officers and CEO, makes light of things, underlies serious issues with jokes, related to IS division
- Get sense of group huddling together, and reacting to perceived attacks, responses do not address the issues of incompetence related to some errors which affected exams

Alternative explanations, disagreements about what is going on in division

- Union president is in this division, maybe the reason for the tension with the CEO, very vocal president, well known that they clash and are open about it,
- Respondents, very careful in their responses, fear, with the exception of Union president.

Appendix M - Within Case Analysis FOM

Main themes impressions, summary statements about what is going on in the division

- Responsive to changes and merging of departments finance and office management
- Working and moving in the IT lead direction
- Excited about new solutions to work smarter
- Positions and work has not changed much
- Most influential in how money is spent, when and why
- Divisions have to account to them for all spending
- Information and knowledge is shared so that changes within the division are integrated across the division, this affects the relationship with other divisions as well

Explanations, speculations about what is going on in the division

- Maintains a power base in the organisation, and changes seem to alleviate a lot of the routine work, and creates more accurate administration of funds, makes everyone more accountable
- The operations do not seem to affect this division, they seem very aware of the changes internally, but they also affect the operations of the entire organisation

Alternative explanations, disagreements about what is going on in division

- The other individuals outside of the organisation do not feel that they communicate changes well, and that they do not consider the logistics of many of the operational divisions

Appendix N - Within Case Analysis HR

Main themes impressions, summary statements about what is going on in the division

- Small Division, working with IT changes
- Enthusiastic about IT HR solution,
- Aware of many of the problems with HR, confidentiality is a challenge

Explanations speculations about what is going on in the division

- Unsure about knowledge of the extent of what the solution may offer, or change the processes

Alternative explanations, disagreements about what is going on in division

- Many of the issues in terms of training related to staff in different divisions
- Concern from individuals in other divisions re confidentiality and value of staff

Appendix O - Within Case Analysis QA

Main themes impressions, summary statements about what is going on in the division

- New division with new role to create and develop quality standards
- One person division, observation mainly
- Questions direction in constructive way, does not think current path is healthy, moving too fast
- Process of developing standards, doing extensive research for implementation of standards, initial activity building awareness
- Preparation for awareness training of entire staff
- Was Head of EDPD, appears to have been too exacting, mainly observes now, very aware of history, keeps distance
- Close relationship with business development

Explanations, speculations about what is going on in the division

- History with organisation, tensions with EDPD, seems to be given neutral responsibility with quality

Alternative explanations disagreements about what is going on in division

- Works practically on own with consultation with other divisions

Appendix P - Within Case Analysis Office of CEO

Main themes impressions, summary statements about what is going on in the division

- Directing, driving, monitoring and promoting new direction
- Involved in all aspects of changes , pushing deadlines and time constraints to get results
- Promoting and sharing, encouraging initiative, relatively open atmosphere, although hierarchy maintained
- Division dominated by CEO ideas, division has to follow dynamic CEO with very high standards and expectations, quickly

Explanations, speculations about what is going on in the division

- Some are unsure about their place in the scheme of things
- Records Manager is not sure where place is and how the section contributes to the new strategy, CEO expresses same

Alternative explanations disagreements about what is going on in division

- They were forthcoming, but also careful about what was said
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Appendix Q - Summary of Divisions reactions to Office Communicator

Impacts of Office Communicator (OC) in Office of CEO – The Office of the CEO played a dual role in recognising the value of an integrated communication system and the potential cost savings that it could bring to the organisation. Although at the time of the interviews, the staff in the CEO's office thought that the new system allowed them to work better and faster, the way in which it was presented created initially a barrier to fully engaging in the process. It facilitated greater coordination across the organisation. One was able to locate colleagues particularly because of the physical layout of the organisation. The new system also provided the CEO with the ability to track and monitor organisational vehicles to ensure that they were being used appropriately. Employees said that they felt an improved sense of appreciation by the organisation.

Impacts of OC in Information Systems Division - ISD played a major role throughout this implementation process **overlapping** the exploratory stage of identifying and acquiring the technology, testing and then implementing. According to the Annual Report 2009, "the old telephone PBX system was decommissioned and the equipment removed" indicating a coerced approach to the initial implementation of OC. ISD also played the role of trouble shooter for all kinds of problems, relating to the implementation. ISD staff expressed frustration with their "internal customers", since they felt inadequately prepared to deal with some of the issues that the process unearthed, and the internal customers were being unnecessarily difficult. One respondent assessed the clients perceived response, "...check how long the majority of staff have been here..." to indicate that the response will be a difficult one no matter how cards are played. In addition to the challenges mentions, part of ISD's own development is a move from being the "know it all" department to solve any and every problem associated with technology even when they do not have the subject expertise. On the other hand the full integration also allowed a new capability where ISD staff could control and fix problems remotely.

Impacts of OC in Finance Division - The impacts of OC have been useful for integration purposes particularly when managing the individuals who work with the organisation for only parts of the year. The selection, payment, and scheduling issues have been reduced because of the ability to coordinate more effectively. The ability to consider even more costs saving based on the potential of OC was also an avenue that was actively pursued by this divisions since it was one of the mandates that it must adhere to in order to work towards meeting the new ICT strategic goals of the organisation. The cost savings was a successful outcome for Finance division.

Impacts of OC in Exam Administration - This division found the OC useful in providing independence value to them as workers. OC also improved their ability to support the external operations of the organisation. One respondent said that a sense of empowerment grew the ability to solve a potential problem was their responsibility. Through the OC the problem came directly to her and she was able to spot the potential problem "and nipped it in the bud". OC enhanced work processes by cutting out many layers of bureaucratic paperwork and individuals were connected directly to the locus of a process. Therefore, the

response time for particular processes improved and the difficulties that would normally materialise at a later stage in the process were circumvented.

Impacts of OC in Exam development and Evaluation - This department found the usefulness mainly in the field and the ability to maintain contact even when out of office. Officers found that they too were more effective since important issues did not have to wait until their return. This decreased the volume of work that would have piled up on their return to office. Officers agreed that OC support the “idea of working smarter” even if the work load also increased with the implementation. One respondent said “technology always brings more work”.

Impacts of OC in Western Aquacon – The main impact with OC was the increased closeness to other colleagues at HQ. One respondent said that the system allowed them to be a part of what was happening at the HQ and not after the fact. They were able to sit in on meetings, indicating that the immediacy of the OC afforded a deeper sense of involvement in the organisational changes. The notion of a seamless organisational space on equal footing was envisioned.

Impacts of OC in Human Resource and Quality, Business development Divisions- were more normal. The HR and Quality division found the communication system useful. In the Business division the possibility of OC was explored more on an individual level here. The common use as with the rest of the organisation was more about exploring the possibilities of the technology itself. The officer wanted to use the technology more for what it can do more than just how it can improve work. Consequently, the full ability of the OC was employed in as many ways as possible without jeopardising work processes.